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HISTORY
OF THE
ALAN WOOD
IRON AND STEEL
COMPANY



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Book . U5A5

HISTORY

of the

Alan Wood Iron
and Steel Company

1792 — 1920

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ERRATA

Page 33—last paragraph—2nd line—April “19th” should read “17th”.

Page 54—Footnotes are reversed. John W. Logan is now Secretary of the Company and R. G. Wood, Jr., Manager of the Steel Works Department.

Page 56—2nd line—“Ice” should read “Furnace”.

Page 75—Date of John Wood’s birth should read—September 6, 1816 instead of April 17, 1826.



PREPARED BY FRANK H. TAYLOR

Early Iron Making Problems in America

William Penn, alive to the importance of the abundance of iron ore in his American domain, wrote, about the year 1700, concerning this subject, in these words:

"As the inhabitants of the British Colonies have already erected 100 furnaces and forges for the making of bar iron, Great Britain may, in the course of years, be supplied and restored independent of any foreign country for a commodity so essential to the support of our navigation."

"But it is to be feared if some encouragement be not given for the importation of it into Great Britain that they will be induced to work up the iron themselves."

The disposition of the Colonists to do this resulted in a law passed by Parliament in 1750, to wit:

"An Act to encourage the importation of Pig and bar iron from His Majesty's Colonies in America and to prevent the erection of any mill or other engine for slitting or rolling iron, or any plating forge to work with a tilt hammer or any furnace for making steel in any of said Colonies. (Note 1.)

The penalties for any such productions in America or the handling of the products were very severe.

Thus it was that, until the period of the Revolution, neither the working up of iron nor the production of steel was lawful in America.

The life experience of those who embarked early in the production of iron and steel in America was ever an industrial warfare against adverse conditions, political, economic and mechanical—conditions more variable than those realized in the upbuilding of any other of the many important forms of manufacture which now enrich the nation.

James Wood, Pioneer Iron Worker

James Wood was the grandson of a Dublin Quaker immigrant of the same name who, coming to America about 1725, settled in Gwynedd where he lived through the balance of his life. He was buried in the Friends' Meeting graveyard there. James Wood, the first of his family to engage in iron making in this country, was born October 23rd, 1771, upon a farm in Montgomery County, near Narcissa or Five Points, situated on the road from Plymouth Meeting to Blue Bell. (Notes 2 and 3.)

In 1796 he married Tacy Thomas, daughter of John and Mary Thomas, of Gwynedd. His wife was an Episcopalian,

(1) In the three years beginning with April, 1771, iron was sent abroad from the Port of Philadelphia to the amount of 6,127 tons.—"Proud's History of Penna."

(2) This property remained in the family to the year 1832.

(3) John Wood stated that his father, James, often related that he remembered a night when Gen. Washington was a guest at the Wood home, being then on the way, with his troops to Valley Forge.



JAMES WOOD.

Born 1771, died 1851, father of Alan Wood. James Wood was the first of his family to engage in the iron business, starting as a "black and white smith" in 1792. In the year 1826 he established the firm of Jas. Wood & Son, with a rolling mill at Wooddale, Delaware.



SITE OF THE FORGE AT HAMMER HOLLOW, OWNED BY JAMES WOOD AND JAMES POTTS. THE FIRST CAST STEEL PRODUCED IN THE UNITED STATES WAS MADE HERE

while he was a member of the Society of Friends. Having wed "out of the meeting," he was dropped from the same, but later was reinstated. Tacy Thomas Wood died on July 11th, 1811. Alan Wood was born of this union.

Four years prior to his first marriage, or in 1792, James Wood established a "smithy" near Hickorytown (then called Pigeontown). This artisan was known as a "black and white" smith, because, in addition to the ordinary work of the country blacksmith, he also made kitchen, or domestic wares.

Early in the last century, prior to 1805, James Wood worked a tilt-hammer forge at "Hammer Hollow," a ravine in the southern escarpment of the Chester Valley, located one mile north from the present station of Strafford, on the Pennsylvania Railroad. The place derived its name from the fact that hammers were the leading product of the forge. Hammer Hollow is a part of property now owned by Major Stevens H. Heckscher. In 1808 Mr. Wood operated a forge on the Pennypack Creek. Two of his large family of children, Charles and Lydia, were born at the residence here. (Note 4.) Ten years later, in 1818, he joined John and Jacob Rogers and Isaac Smedley in a forge property at Valley Forge, there manufacturing sickles, scythes, shovels, and other agricultural implements, as well as files, cross-cut and circular saws. This mill is historic. The original forge was built according to the best obtainable evidence, in 1742, by Stephen Evans, Daniel Walker and Joseph Williams, and was bought, in 1757, by John Potts, whose grandson, Isaac Potts,

(4) The mill and residence of James Wood on the Pennypack were between Fox Chase and Bustleton and within Philadelphia county. The site is now included in the new Pennypack Park tract.



JAMES WOOD'S FORGE ON THE PENNYPACK. THE SITE IS WITHIN PENNYPACK PARK

lived in the stone residence near the mouth of the creek, which is now venerated as Washington's Headquarters. (Note 5.) The lower forge, built by Col. William Dewees, a son-in-law of Isaac Potts, was burned by the British troops in the fall of 1777, and they also sacked his residence, which is now a part of the Washington Inn. (Note 6.) That the Dewees forge was not entirely destroyed is evidenced by an order written by General Washington, dated April 29th, 1778, as follows:

"Complaints having been made by Mr. Dewees, the proprietor of the Valley Forge, that the soldiers pull down the houses and break up the Fore Bay, of which is called the Valley Forge, the Commander-in-Chief strictly forbids all persons from further damages to the said buildings and works, which he hopes will be particularly attended to, especially when they consider the great loss that Mr. Dewees has already suffered by the great waste which our army has been under the necessity of committing upon the wood and other improvements."

Mr. Wood and his partners repaired the old Dewees forge, and the former became manager. (Note 8.) The company soon afterward began to turn out saws and shovels, etc., erecting for the purpose a crucible steel furnace. With regard to this enterprise Swank says, in the History of the Iron and Steel Industry, "Mr. Wood's son, John Wood, of Conshohocken, stated (about 1890) that the Valley Forge plant made some excellent steel, but the project was soon abandoned. This was the first important crucible steel enterprise in our history, brought to our notice." (Note 9.)

The family relationship which subsequently existed between the Wood and the Dewees families* justifies the following as of interest in this work:

According to the history of Valley Forge (Note 10), a large amount of flour was stored at Valley Forge in August, 1777. As it was in danger of spoiling, the Board of War advised that it should be baked into hard biscuits. Colonel William Dewees was entrusted with the work, and he built large ovens in the cellar of his house, where army bakers were detailed to do the baking.

(5) The original forge in the valley was located a half mile up stream. The iron was brought from Warwick furnace. At the time of the revolution it was owned by William Dewees, Jr. This was the forge destroyed by the British troops. Some years later a new forge was built near the Dewees mansion. This was operated until 1824. The site of the old forge is on the property now owned by Senator Philander C. Knox.

(6) Many years after the Revolution the family of Col. William Dewees, through his son William, a lawyer at Washington, presented a claim for indemnity. About the year 1820 the Government allowed them a sum not even equivalent to the interest on the amount of the loss.

(8) Valley Forge. "How early the forge was erected here we cannot say, but it is marked on William Scull's map of Pennsylvania, published in 1770. Some time after the Revolution it was torn down and the spot is now occupied by Mr. Roger's cotton factory."

(9) Writing in the year 1858, of Valley Forge, William J. Buck, historian of Montgomery County, said: "There is now no forge or furnace in this vicinity, but iron ore is still dug in considerable quantities about a quarter mile from the village on the road to the King of Prussia."

(10) Published by Rev. W. Herbert Burk, D. D.

*Alan Wood married Ann Hunter Dewees, granddaughter of Col. Wm. Dewees.

While it is known that the house was damaged by the British in September, 1777, and the flour destroyed, it does not appear that the building was destroyed, as several courts martial were conducted there by order of General Washington. This building is now known as the Washington Inn.

The Dewees family in America is descended from William Dewees, Sr., who was, in 1742, a paper maker, near Germantown. (Note 11.) He was of Huguenot ancestry. His home was in Whitemarsh. His grandson married Rachel, daughter of Edward Fermor. These were the parents of Colonel William Dewees, of Valley Forge. The Fermors, who were among the large investors in lands granted by William Penn and who came to America in 1685, were descendants of the ancient family of Fermors, of Easton Neston, Northampton County, England. The city of Easton, Pa., was named in honor of Lord Pomfret, who was a Fermor and whose estate bore that name. Lady Juliana Fermor married John Penn.

After the Valley Forge venture James Wood returned to the Pennypack. A recently discovered patent of much historic value was issued to him on February 10th, 1825, for improvements in making shovels and spades. The improvements are described therein, as follows: "The blanks are entirely of iron or steel, the blade being attached to the handle by means of steel or iron straps fastened to the blade, and also to the handle by rivets, on the front and back side of the blade and handle, the said blades being each of a single piece of steel rolled to the proper dimensions and not hammered."

This was a decided advance in the making of these implements. The patent was signed by James Monroe, President; John Quincy Adams, Secretary of State, and William Wirt, Attorney General.

In 1826 James Wood turned his attention to the State of Delaware. The records prove, however, that he retained the Pennypack property to April 1st, 1833, when he sold it to William Slater for \$5,500.00.

Due to deposits of bog ores iron-making had been conducted in a small way in Delaware for nearly or quite a century. These ores were found in deposits of sand and clay of the tertiary period. Another source of supply of ore was the famous Iron Hill, located in Cecil County, Maryland. This deposit was known as early as 1661. It was mentioned by Gabriel Thomas in 1695. Long before the Revolution small "bloomeries" existed along Red Clay Creek, an affluent of Christiana Creek. The chief essentials of iron production in that period were ore, water and charcoal. In 1812, by reason of war with Great Britain, imported iron disappeared from the American market, resulting in very high prices.

(11) The Dewees paper mill, like the earlier mill established by Rittenhouse, was undoubtedly the result of the influence of Benjamin Franklin. Wm. Dewees came from Leuwarden, Holland, his ancestors having fled thither from France during the days of persecution.

First Rolling Mill of the Wood Family—1826

There stood upon Red Clay Creek at Wooddale, a point about five miles northwest from Wilmington, Del., a small water mill, which had probably been used previous to 1826 to turn out nail plates. This mill James Wood and his son, Alan, leased in 1826 for a period of five years. (Note 12.)

For many years following the close of the second war with Great Britain the constant efforts of those engaged in various manufactures to secure protective legislation against foreign, and especially British, competition were of no avail. In 1817 the "Delaware Society for Promoting Manufactures" was organized at Wilmington. The balance of power at Washington was held by the farmers of the North and the cotton growers of the South, which meant a free market, or nearly so, for the iron masters of Europe in the ports of our Atlantic seaboard. It was only by securing very cheap and therefore unskilled labor and by close economy all along the line that a profit could be made by the manufacturing interests. The prevailing rates of wages paid at the Delaware Iron Works were from fifty cents to one dollar per day, upon yearly agreements. (Notes 13, 14 and 15.)

The iron used at the Delaware Rolling Mill was bought in the form of bars, American, English and Swedish being used. It was then the practice of James Wood & Son to buy and sell at six months' time, a discount of five per cent. being allowed for cash. Correspondence which has been preserved indicates that it was always a leading idea in the Wood family to raise the quality of their product, insisting upon the best raw material and upon careful workmanship. (Notes 16 and 17.)

(12) This lease was made on July 27, 1826, by the Bank of Wilmington and Brandywine. It was recorded therein that it was in the tenure of J. & J. Whitaker, who had acquired it from Smith & Gilpin. The rental sum was \$500.00 per annum. That the property later came into the ownership of Dr. Wm. Gibbon is evidenced by the following memorandum upon the day book of Jas. Wood & Son, Sept. 18, 1840. JOHN WOOD.

"Dr. Gibbons was here today and says he likes the looks of the mill. Has left a note with me prohibiting any person or persons from moving any stone or other material from below the same or in its vicinity."

(13) 1841. *Journal of John Wood*.—"Hired George Hollis as spannerman at 50 cents per day.

"James Holland, an Englishman, went to work today at \$10.00 per month, for one year.

(14) The vicissitudes of the iron business are many and various. Here are a few instances noted by John Wood in 1841 at the Delaware works.

March 11th: "Water wheel all went to pieces with a tremendous crash."

August 1st. "Lots of trouble to get good product."

September 13th: "Pierce lazy; did not get the heat in until 2 o'clock this morning."

Dec. 23d: "Great flood in creek. Considerable loss."

(15) 1836. Letter of Alan Wood: "Best quality of American sheet iron in great demand. Making about 1 ton per day. Prices from \$150.00 to \$160.00."

(16) 1836. *Letter of Alan Wood*.—"When we had our circular printed we made a common article of sheet iron in imitation of the English or Jersey Iron Co.'s puddled iron. We have, sometime since, declined making this article. It did not meet the approbation of our customers. We, however, would furnish you with the best quality of Juniata sheet-iron, etc., delivered on any vessel at our port."

(17) 1838. *Letter of Alan Wood*.—"All sheet iron is rolled from the best quality of blooms. Have not, in general, annealed any of the sheet iron, it being soft and works well without."



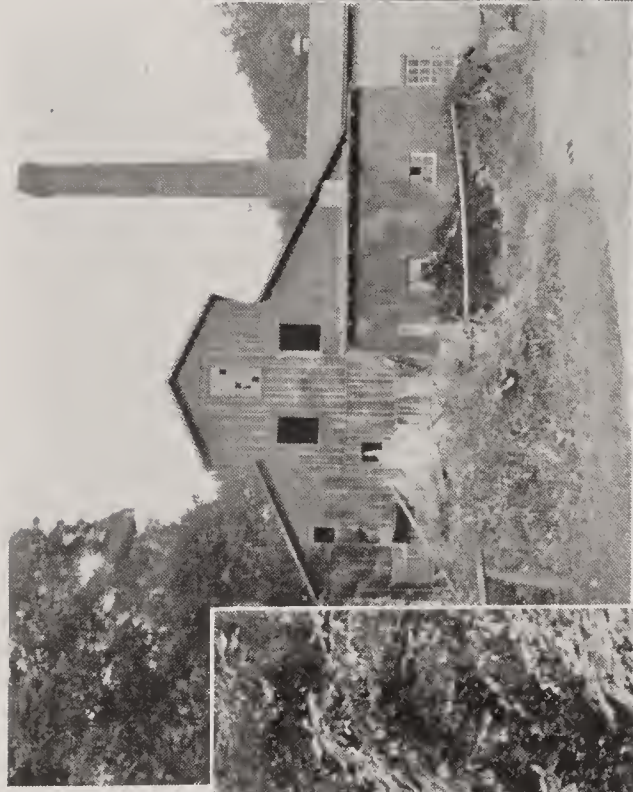
LOCATION OF THE DELAWARE IRON WORKS

In these modern days the distance between Philadelphia and the State of Delaware may be covered by train or automobile within an hour, but it was a considerable undertaking ninety years ago. The fuel materials and products were hauled by six-horse teams between Wilmington or Newport and the works. They were transported upon the Delaware River by sloops plying from and to Market and Arch Street wharves. After 1838 when the Philadelphia, Wilmington & Baltimore Railroad was completed shipments were usually made by that route. The branch railroad touching Wooddale was not in operation, however, until after the sale of the water and mill properties by the Wood interests.

The lease, which is still in existence, was made on July 27, 1826, by the Bank of Wilmington and Brandywine, and Edward Gilpin to James Wood for a period of 5 years from March 25, 1827. However, James and Alan Wood took possession of the property at once, as is undoubtedly evidenced by the Delaware Iron Works "Day Book," which was opened August 17, 1826, with the statement, "James Wood and his son Alan enter into



DELAWARE IRON WORKS AND RESIDENCE
ON RED CLAY CREEK, DELAWARE



THOS. WOOD, SON OF ALAN WOOD;
JAMES W., SON OF JOHN WOOD; RICH-
ARD G. and ALAN W. WOOD (SONS OF
W. DEWEES WOOD) WERE BORN HERE

the rolling and manufacturing business at the Delaware Iron Works and are to divide profit and loss equally."

This little mill is picturesquely set in a hollow surrounded by low hills that makes it almost a little world of its own. On a knoll overlooking the mill is a stonehouse where the members of the family in charge of the mill, at various times, lived. A mill race circles around the knoll, feeding the water to the wheel that furnished the power to turn the rolls.

For six years, from 1826 to 1832, Alan Wood lived in the stone house and had charge of the Delaware Iron Works, while his father, James, ran the store at 161 North Second Street, in Philadelphia. From the Day Book we find that James Wood bought and forwarded most of the raw material to the mill, such as bars and coal. From the first, anthracite coal from the Lehigh or Schuylkill districts was used, costing from \$6.50 to \$8.00 a ton. The iron was bought in the form of bars, either American, Swedish, Russian, or occasionally English, and rolled into plates or sheets. On September 1, 1826, James Wood was charged with 99 plates of Spade Iron, which was doubtless the first iron rolled by the Wood family. This charge was made as a matter of book-keeping between the works and the store in Philadelphia. In November of the same year some bundles of sheet iron were shipped to him, showing that the mill had gotten into working order.

To our surprise we find that they also, even at this early date, rolled considerable steel, this being bought in the form of slabs or bars and rolled into shovel or saw steel. At that time soft steel bars cost \$125 a ton, while American iron bars were \$100 and Swedish \$102.50 a ton. The Swedish iron plates were charged to James Wood, by the mill, at \$140 a ton and steel shovel plates at \$160. The Delaware Iron Works also manufactured some of its product into finished shovels, hoes, etc., and shipped them to James Wood in Philadelphia.

The eight or ten men necessary to do the work were boarded at a cost of \$2.00 a week to the mill, and were paid, in addition, usually at the rate of \$5.00 a week. The shearing and forming into shovels, however, was done by piece work at so much per dozen.

It is interesting to note that by 1828 and 1829 the Delaware Iron Works was making sheets ranging in gauge from No. 27 (about three-fourths of a pound to the square foot) to No. 10 (over 5 pounds to the square foot), and, on occasion, rolled small cast steel ingots into circular saw plates.

That they had their troubles then, even as we do today, is shown by this entry in 1831—"Profit and loss charged \$733.99 for rolls broken this year." The rolls weighed about a ton apiece and were three feet long, varying in diameter probably from 15" to 18".

As related by the Day Book, an important change was made in May, 1832, when the business was moved to Conshohocken. Not only was the equipment of anvils, shears and other tools transferred, but the men themselves and the Day Book began anew at the water mill on the banks of the Schuylkill Canal. We can find no records or mention of manufacturing again at the Delaware Iron Works until 1840, when John Wood, a younger brother of Alan Wood, took charge there, as related in his time-book still in existence. From 1840 the Delaware Iron Works was operated under the control of the Wood family to 1889, when it was abandoned, and a few years later the property was sold.

The Conshohocken Iron Works

An agreement between James Wood and his son, Alan, effective on January 1st, 1832, resulted in the erection in that year of a water mill for rolling iron at Conshohocken, "on the Plymouth Canal." (Note 19.) Soon afterward the plant at Wooddale, Delaware, was abandoned. (Note 20.) At this time James Wood removed to Conshohocken and bought a farm from David Lukens in the vicinity. (Note 21.)

The Conshohocken mill started on May 5th, 1832, to roll sheets, the rolls being 18 inches in diameter and 36 inches in length, for making shovel plates only. The water wheel had a length of 20 feet and a diameter of 16 feet. The balance of the equipment included one grate furnace. The sheet mill was coupled directly to the end of the water-wheel shaft. The capacity of the rolls was 54 sheets in 12 hours.

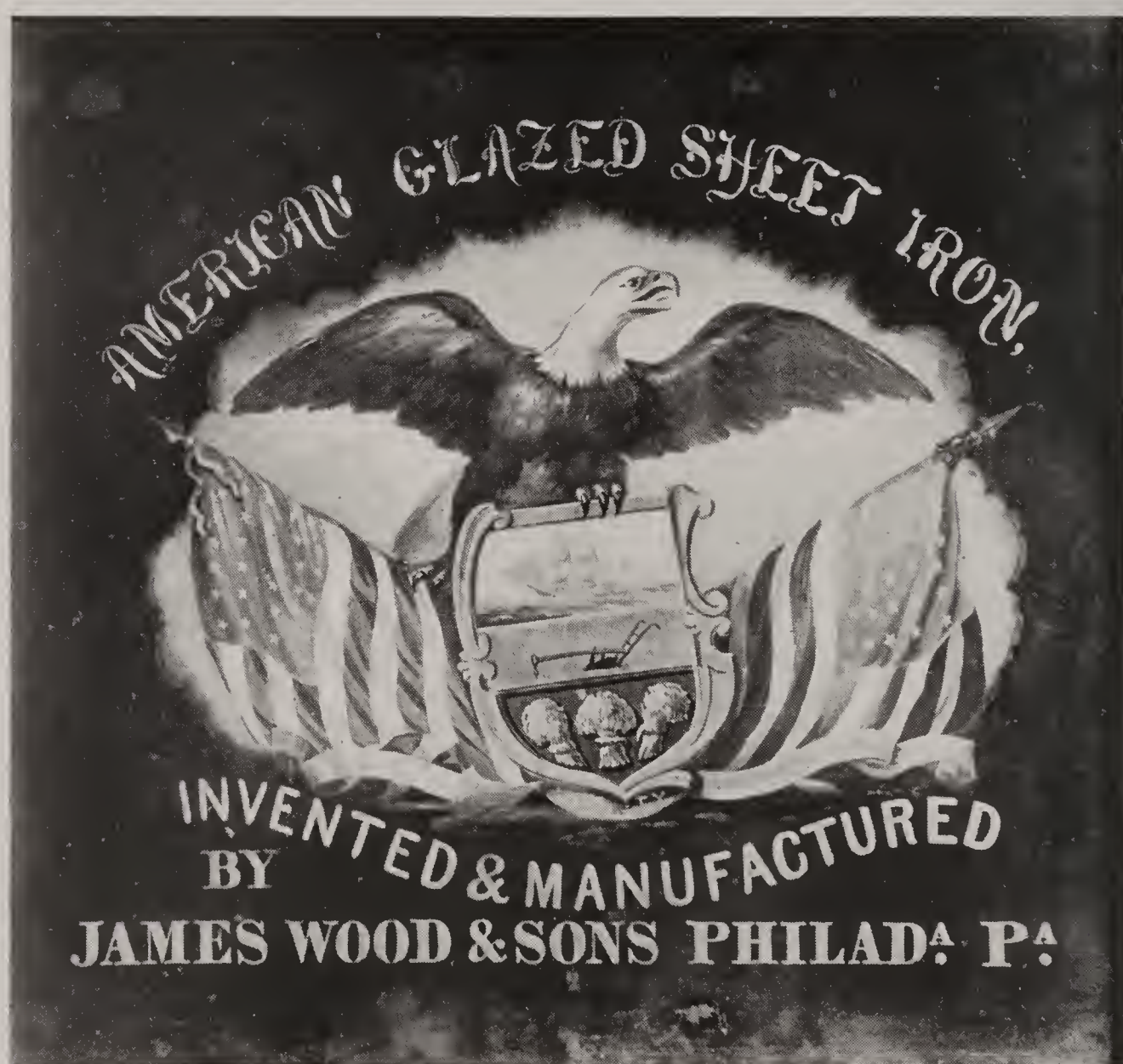
The iron was rolled partly of bars purchased from various sources, partly from blooms delivered by boat from the forge of James Seyfert in Reading. Blooms were also supplied by Lewis A. Lukens, who had married Mary Wood, a sister of Alan Wood, and was located at New Market Forge, Lebanon County, Pa. To roll the blooms into bars it was necessary to take out the sheet rolls and put in the bar rolls, thus stopping temporarily the making of sheet iron till a supply of bars was acquired.

In 1835 the firm built a three-story shovel factory in west end of water mill; this was torn down in 1880. The trimming shear was in the second story of this building, and sheets were carried up to be trimmed. The shear was of alligator type and had a stroke of 12 inches.

(19) The Conshohocken land was purchased from the Schuylkill Navigation Company on September 3rd, 1831. It is described as being on the Matson's Ford road between the Canal and Schuylkill river, fronting on Mill Street. The consideration included a ground rent of 25 cents per running foot, yearly. The Navigation Company also contracted to supply "900 square inches of water at an annual rent of \$1,000."

(20) Day book of James Wood & Son, October 14th, 1832: "Balances due the Delaware Rolling Mill are transferred to the accounts of the Conshohocken Rolling Mill, the Delaware mill being closed by removal to Conshohocken. The latter mill is now in operation in the same manner and on same conditions as (formerly existed) at the Delaware Mill."

(21) James Wood was at this time 61 years old.



EXHIBITED AT CRYSTAL PALACE EXPOSITION AT NEW YORK IN 1852.
THIS PIECE OF IRON IS STILL IN GOOD CONDITION.



ORIGINAL MILL AT CONSHOHOCKEN, SHOWING LOCATION OF WATER WHEEL

On January 1st, 1840, James Wood sold his interest in the firm of J. Wood & Son to William W. Wood, who continued the business in association with Alan Wood, under the title of A. Wood & Brother, for one year. (Note 22.)

An entry in the books of the concern, under date of December 15th, 1841, announces that the firm of A. Wood & Brother was "in liquidation." A further memorandum, dated the following day, was signed by J. Wood & Son, Alan Wood being rejoined by his father.

Following the conclusion of the partnership of Alan and William Wood in 1841 the business was conducted by James Wood and his son, Alan, under the original title of James Wood & Son, and now included once more the Wooddale mill which had been again rented in 1840, being operated by John Wood, another brother of Alan Wood. Here they continued a series of experiments in an effort to produce an imitation of Russia sheet iron. Business at this period was much prostrated. In the following year John Wood wrote, "We have had some experience in business, but never knew such times as these." Nevertheless the experiments were continued, and they were rewarded in 1842 with a silver medal from the Franklin Institute. The improvement in the product thus evidenced at the Wooddale plant doubtless led to the series of readjustments of interests in the Wood family, which occurred in the following years. In April, 1843, Wood & Brothers, composed of Alan, John and William Wood,

(22) James Wood received for his half interest in the business \$22,098.98.

(23) The Schuylkill Navigation Company was incorporated in 1815. The route, comprising 63 miles of canals and 47 miles of slack water, was opened for navigation in 1826. The channel was enlarged in 1846.



MILL OF J. WOOD & BROTHERS, CONSHOHOCKEN—EARLY VIEW

rented a store at No. 3 North Fifth Street, removing there from the old Second Street store.

At this time Alan Wood was negotiating with Dr. William Gibbons, the owner of the Delaware Iron Works, for its purchase. This was accomplished in November, 1843, the price paid being \$8,000.00. This deal was followed by the conclusion of the partnership between Alan Wood and his brothers. The business relation existing with his father from 1826 was also ended. (Note 25.)

Several years afterward, referring to the changes in interest, Alan Wood wrote: "James Wood has retired from business and resides in the country. I succeeded him and continue at the Delaware Iron Works. Four of my younger brothers are also engaged in making iron and use the title 'James Wood & Sons.'"

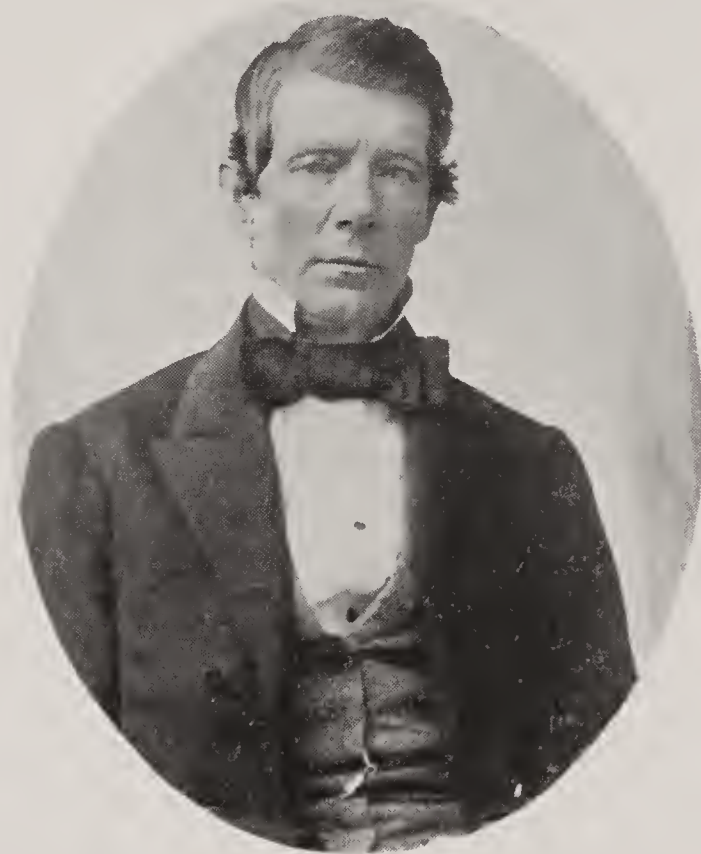
These brothers continued to do business at the Second Street store, selling the products of the Conshohocken mills.

John Wood, who had removed from Wooddale to Wilmington on January 1st, 1844, and thence to Philadelphia, also relocated at 161 North Second Street.

J. Wood & Bros.

Mr. James Wood retired from business on February 23rd, 1848, after which the mills were conducted by his sons, John, William W., Thomas C. and David L. Wood. The title of the

(25) When Alan Wood bought the property in Delaware he paid to his father and brothers in interest the sum of \$1,050.00 for the tools and machinery in the mill.



"SQUIRE" JOHN WOOD

Born in Philadelphia, September 6, 1816. In charge of mill at Wooddale, Delaware, from 1840 to 1844. Head of the firm of J. Wood & Bros. at Conshohocken from 1848 till his death in May, 1898. Member of Congress prior to end of Civil War.

firm then became J. Wood & Bros. James Wood died on June 29th, 1851.

The subsequent history of the Conshohocken establishment is a record of frequent enlargement due to an ever-increasing business. The capacity of the mill was aided in 1846 by the addition of a fly-wheel in the pit of the water mill.

Puddling was introduced at the plant beginning on September 17th, 1847.

In the year 1851, the firm built the first steam mill in Conshohocken, and in 1862 added the lower mill with the following equipment: 1 double puddling furnace, 1 heating furnace for bar mill, 1 grate furnace for sheet mill, 1 sheet mill with 20 x 42 inch rolls, one 5-inch bar mill.

Many years later this equipment was replaced by the present two 3-high mills, one of which, the 26 x 72 inch mill, purchased from the Marshall Brothers, went into operation on March 29th, 1898, and the other, a 3-high 26 x 60 inch mill, was installed on March 17th, 1903.

The firm was incorporated in 1886 under the style of J. WOOD & BROS. CO. Hon. John Wood, familiarly known as the Squire, was made president of the newly incorporated company.

Hon. John Wood

The Hon. John Wood was distinguished prior to his death in May, 1898, as the oldest active business man and one of the foremost in Montgomery County. He was also a leader in public affairs. An exception to the general disinclination of members of the Wood family to accept the cares and honors of political office, he served, prior to the period of the Civil War, a term in Congress. He was one of the sons of James Wood, founder of the several iron and steel industries with which the family name is identified. He was born in Philadelphia September 6th, 1816. Alan Wood was an elder brother. When sixteen years of age Mr. Wood became a clerk in his father's store in Philadelphia. As elsewhere noted, he was, in the course of his career, interested in the plant of Red Clay Creek, Delaware, and, with his brothers, in the Conshohocken establishment. Prior to 1840 he was in partnership with Lewis A. Lukens at New Market Forge, Lebanon County, Pa., in the manufacture of blooms. In 1851, when his father died, he became head of the firm and took the lead in adding steam mills to the old Conshohocken plant. (Note 29.)

His son, James W. Wood, has been an iron man for some sixty years. He began his life-work in the mill of J. Wood & Brothers Company, of which his father was the head. He has

(29) Mr. Wood was married twice. He wed, in 1840, Elizabeth K. Wells, who died in 1864. Two years later he married Ninette Peterman, of Elkton, Md. The children of John Wood and Elizabeth K. Wells Wood were Helen, James W., Clara, William W., John, Jr., George W., Lizzie W., Rachel and E. J. Morris; those of the second marriage of Mr. Wood were Mary P., Walter D. and Edith M.



THE J. WOOD & BROS. MILLS, BUILT 1851 AND 1862 (Purchased by Alan Wood Iron & Steel Co., March 14, 1917)

always been active in the industry, and through his technical skill has been an important factor in the development of the immense iron and steel producing plants grouped at this point. His recollections of the details of the growth of the business of iron and steel manufacture at Conshohocken have been of great assistance in the compilation of this book.

The J. Wood & Bros. Co. operated as an independent company till March 14th, 1917, when its stock was purchased by the Alan Wood Iron & Steel Co. On June 30th of the same year, it gave up its charter to become a part of the Alan Wood Iron & Steel Co., and is now known as the "J. Wood Department" of that company. The machinery in the original old water mill was dismantled in 1908, likewise in 1918 the equipment of the steam mill built in 1851, having become outworn, was consigned to the scrap heap. There remain in operation, the two 3-high mills constructed during 1898 and 1903 in the building erected 1862. These have been considerably improved by the installation of electric motors on shears, fans and other auxiliary machinery, the electric current for which is supplied from company's blast furnaces at Swedeland.

Alan Wood

Having followed the history of John Wood and his brothers in the iron business, let us turn our attention to their brother, Alan Wood, who had severed business relations with them January 1st, 1844, and purchased the Delaware Iron Works. His oldest son, W. Dewees, was now a boy of 18 years, who had learned the rudiments of the business under the tutelage of John Wood, while the latter was in charge of the Delaware Iron Works. Dewees was now put in charge of the mill under the direction of his father who, however, continued to live in Philadelphia, where he managed the business at the store, 3 North Fifth Street, and sold the iron rolled in Delaware. In 1848, W. Dewees Wood married Rosalind Gilpin, and of this union two of their children, Richard G., now Chairman of this company, and Alan W. were born in the old Delaware home.

In 1851 Dewees left his father's business to go to McKeesport, where in partnership with his father-in-law, Richard B. Gilpin, he built the McKeesport Iron Works. This move left the Delaware Iron Works in charge of Alan Wood, Jr., a younger son of Alan Wood, and only 17 years old at this time. He was, however, a natural "mill man," and under his father's guidance proved equal to the task.

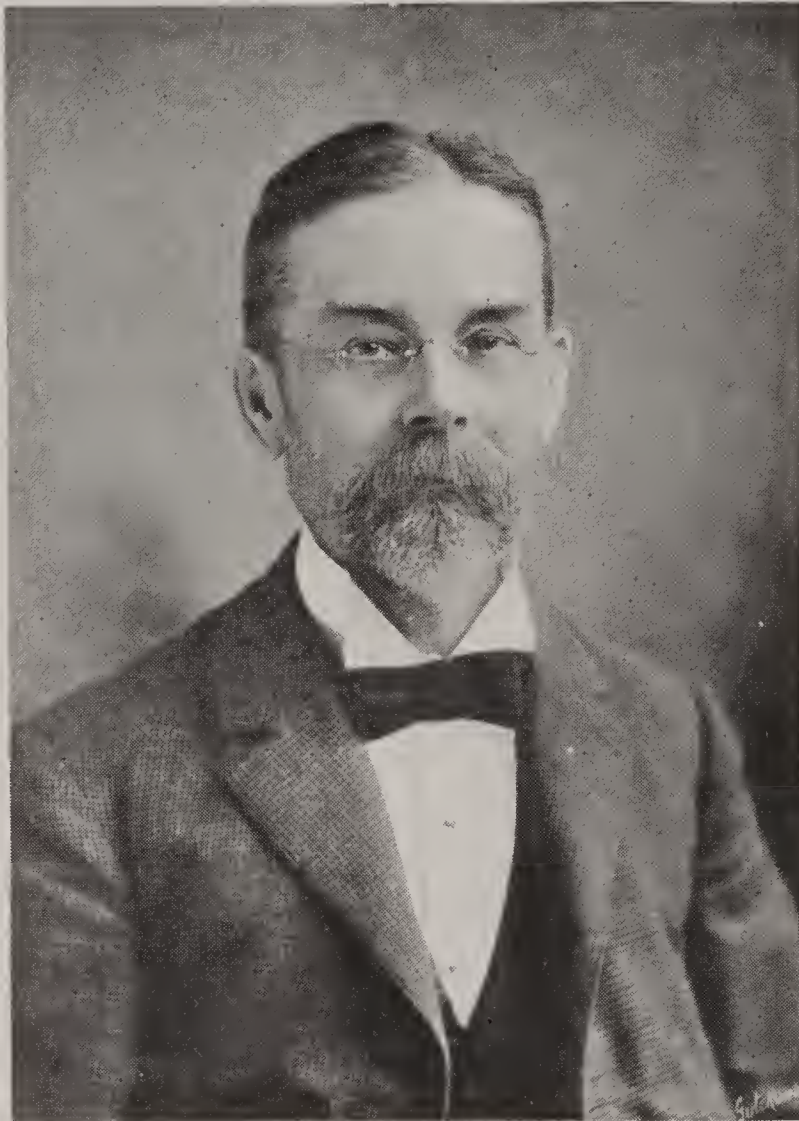
For six years the Delaware Iron Works remained under the charge of Alan, Jr., when, in 1857, the hard times or "panic of '57" caused his brother, Dewees, temporarily to give up his venture in McKeesport and return to Delaware, where for four years he was again manager of the little water mill. It was an ideal spot for his family of boys, as well as for his youngest



ALAN WOOD

Born at Hickorytown, near Plymouth Meeting, Pa., on Christmas Day, year 1800. Started in business with his father and formed partnership with him as James Wood & Son in 1826. Founded firm of Alan Wood & Co. in 1857.

Died November 24, 1881.



ALAN WOOD, JR.

The Hon. Alan Wood, Jr., son of Alan Wood, was born July 6, 1834, in Philadelphia.

At the age of seventeen he took charge of his father's mill, "Delaware Iron Works," near Wilmington, and in 1857 moved to Conshohocken to assist his father in building the new Schuylkill Iron Works. To him great credit is due for the solid construction of the mills, also for persevering in making successful the then new three high type of mill. He was a builder and under his guidance took place the early rapid growth of the works.

In 1876 he was elected to Congress and served one term, after which he returned to the iron business, and upon the incorporation of the Alan Wood Co. in 1885 became its first Treasurer. Soon afterward he retired from active business, but remained a Director of the Company till his death, and took a leading part in promoting the building of the Steel Works.

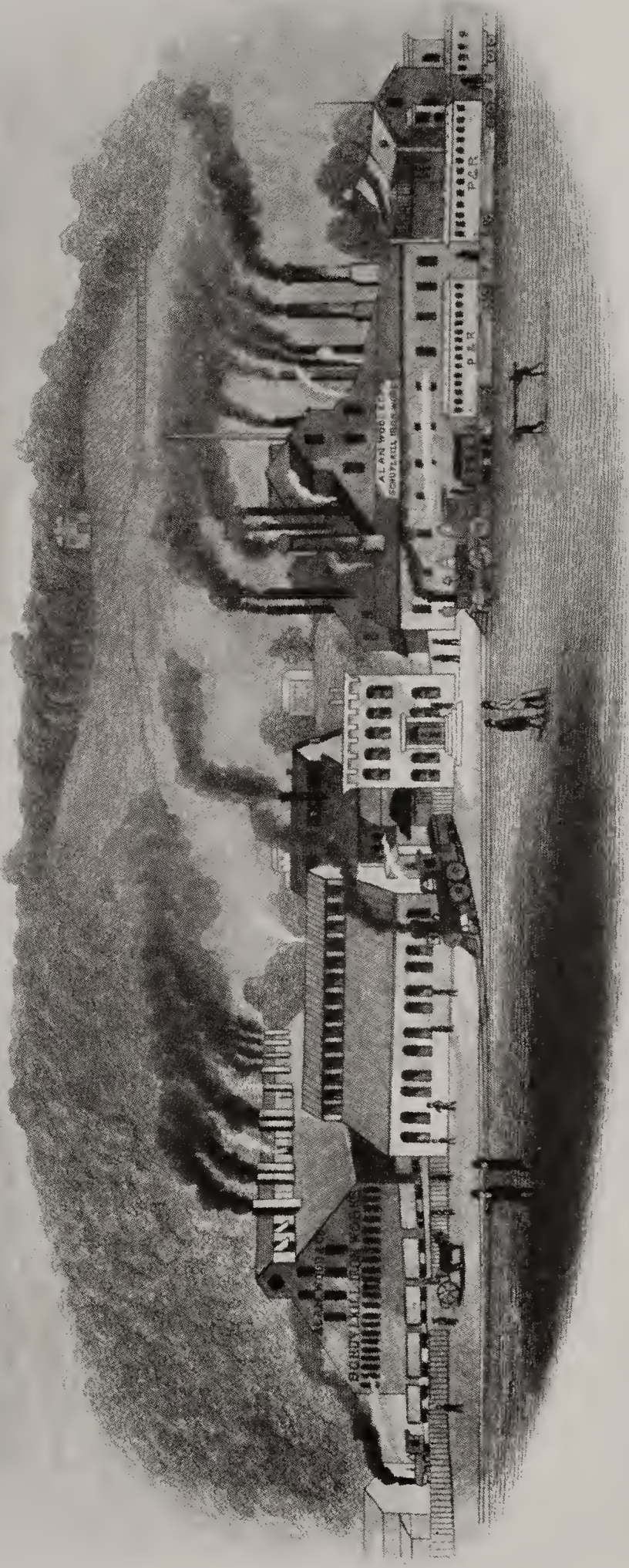
He married Mary H. Yerkes in 1861. At her death in 1918, she left her residence and grounds with an endowment fund of \$100,000 to the Borough of Conshohocken for use as a park.



LEWIS A. LUKENS
One of the original partners of Alan
Wood & Co. in 1857. Married Mary
Wood, sister of Alan Wood.
Died 1899.



CHARLES LUKENS
Partner in firm of Alan Wood & Co.
Son of Lewis A. Lukens.
Died 1902.



EARLY VIEW OF SCHUYLKILL IRON WORKS

brother, Howard, who frequently came from Philadelphia to visit. They all thoroughly enjoyed the country life, spending much time fishing and swimming in the mill race.

This period of their lives came to an end in 1861, when Dewees Wood decided it was an opportune time to return to McKeesport and resume his former business, which he did with great success. The Delaware Iron Works continued in operation under the general management of Alan Wood and his sons, but from now on was not in the immediate charge of any member of the family.

Bars for rolling were secured from the new works at Conshohocken, which arrangement continued till 1889, when the mill was finally abandoned and a few years later was sold for \$8,500, just \$500 more than the price paid by Alan Wood in 1843. It afterwards became a pulp mill, which burned down. Property now belongs to Mr. Ruppert, president of the Delaware Fibre Co., and the water power is used to make electricity for his adjoining beautiful home and farm.

Alan Wood & Co.

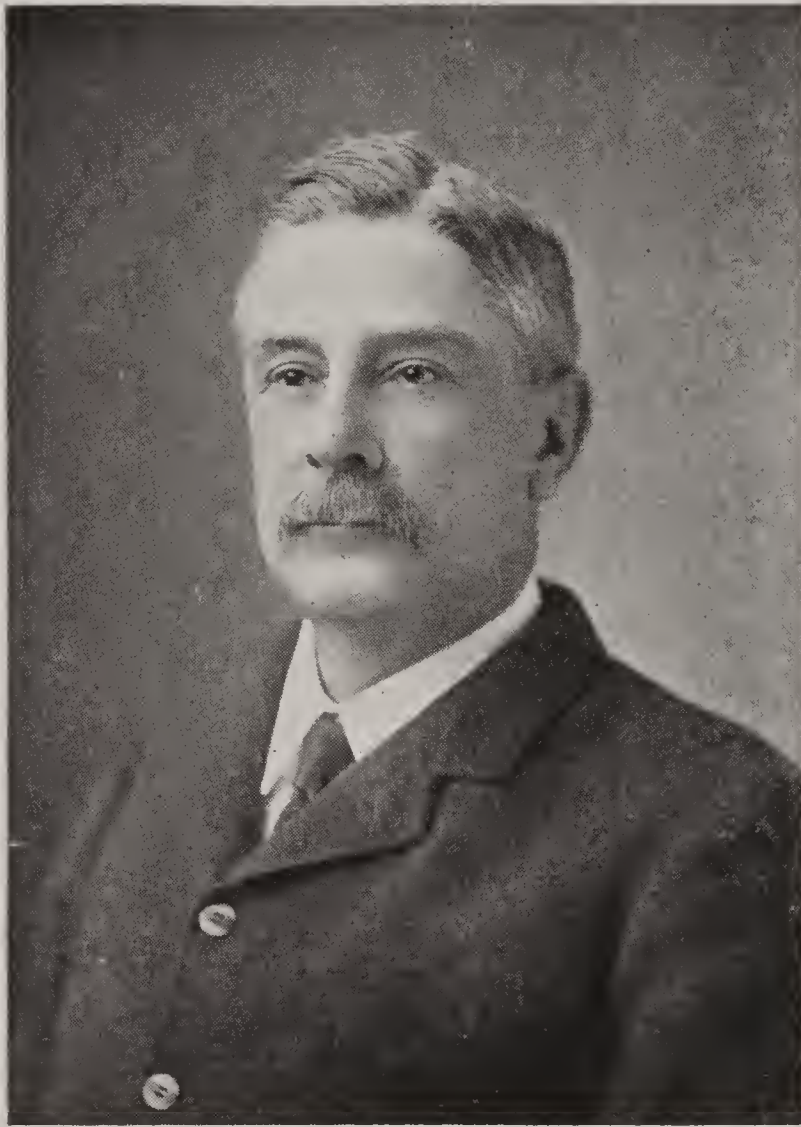
The year 1857 was a notable one for the Wood family. In that year Alan Wood, in partnership with his brother-in-law, *Lewis A. Lukens, founded the firm of the Alan Wood & Co., and started the present Schuylkill Iron Works in Conshohocken. Alan, Jr., who had had six years' experience at the Delaware mill, assisted his father in building the new mill and was put in active charge of it. The development of this mill under his able management, followed by his younger brother, Howard, is best described by the ensuing account of Mr. Wm. A. Cooper, who came to this mill in 1884 and became manager in 1911 upon the death of Mr. Howard Wood.

Schuylkill Iron Works

By WILLIAM A. COOPER

When the Schuylkill Iron Works was built in 1857, the equipment consisted of one sheet mill with a grate furnace, and what afterwards became No. 2 Sheet Mill, but was then a two-high flue mill, and a 5-inch bar mill with one heating furnace between them, which was used on the day turn to heat piles for the flue mill and on the night turn to heat piles for the 5-inch bar mill, and two single puddling furnaces. The flue mill had a double turn, one turn rolling flue iron on the day turn and the next week bar iron on the night turn. The sheet mill turn on the day and the bar mill turn at night rolled the product of the two single puddling furnaces.

*William W. Lukens, now president of the company, is a grandson of Lewis A. Lukens.



HOWARD WOOD, SR.

Son of Alan Wood, born in Philadelphia, February 8, 1846. Graduating at the age of 18 from the University of Pennsylvania, he started in business at the Schuylkill Iron Works and upon the election of his older brother, Alan, Jr., to Congress in 1876, took entire charge of the mill. When the firm was incorporated in 1885 (December 27) he became President and held this office till his death, July 1, 1911.

Under his leadership, the Company built the Steel Works and acquired blast furnaces by merging with the Heckscher interests.

He married Mary Biddle in 1869, from which union there were five sons and four daughters. Three of his sons are at present associated with the Company.

The steam engine which ran the mills had no governor and the engineer sat on a high stool with a lever about three feet long which controlled the throttle valve, and endeavored to make the mill run as regularly as possible, but there were many breaks in the speed. Edward Lancaster, one of these engineers, entered the army and was killed during the Civil War. His body was the first one sent back to Conshohocken. The only lights in the mill at night were oil torches hanging over the roller and one over the catcher.

The sheet mill force finished everything either two or three-high, finishing nothing four-high. The turn annealed all their product in the open-grate furnace as they made it, and the product would hardly pass muster now.

In 1862 the No. 3 sheet mill was built, with a Corliss engine. On this train were a pair of puddle-rolls and a "coffee-mill" squeezer. Two more double puddling furnaces were also built.

At this time hard coal was used exclusively and much of it was brought down in canal boats and unloaded by a bucket on a swinging crane arm. About this time there was built, in the upper part of the building, what was called the "old English annealing furnace," where the sheet iron was annealed standing on its edge.

In 1866 the west mill was built. This was the first three-high mill for rolling light sheets and plates. The rolls were 22 inches in diameter by 54 inches long, and the little roll was 11 inches in diameter, but was soon changed to one 12 inches in diameter. Great trouble existed to get this mill to work satisfactorily and discouragements were many, but Mr. Alan Wood persevered and finally made a great success of it. In the Pittsburgh district this type of mill is still called a "Conshohocken mill."

The mill was driven by a vertical 36 x 42 engine built by the Pusey & Jones Company, with a double crank. On one side was the west flue mill, with a set of three-high finishing and a two-high break-down mill, and beyond this a 7-inch bar mill, and on the other side of the engine No. 4 sheet mill and later, the little three-high mill beyond the No. 4 sheet mill.

The west flue mill had two heating furnaces and an open annealing furnace, and the 7-inch bar mill had one heating furnace. The puddle mill was rebuilt. In all there were 8 double-puddling furnaces, but No. 2 puddling mill furnace was soon taken down, as from its location the puddlers got the flashes from the 7-inch bar mill and it was impossible to get men to work at the furnace. The equipment stood at 7 double-puddling furnaces until puddling was discontinued in the west mill some time after 1890.

In 1866 the Corliss engine on No. 3 sheet mill was replaced by the vertical 26 x 42 "straddle bug" engine built by the Pusey & Jones Company, which is still in use.



SCHUYLKILL IRON WORKS, CONSHOHOCKEN IN 1917
Front View

The 36 x 42 engine on the west mill with the double crank, and a fly wheel on each side, was a source of constant trouble and expense, it being almost impossible to keep the four bearings in line, and when one side was checked up by a plate going through the rolls the fly-wheel on the other side kept at speed and put severe strains on the crank pin, which frequently broke, and it is a compliment to the care and attention of the machine department that the old engine lasted and ran continuously from 1866 until October, 1913, when it all went to pieces and was replaced by a 34 x 60 Mesta engine, with a rope drive, connecting with the roll train.

In 1870 the little three-high mill was built at the end of No. 4 sheet mill train. This was a set of three-high rolls 18 x 36, with a 12 x 36 little roll. The plan was to break down on the two-high No. 4 sheet rolls and finish on the three-high, and make sheet iron by this method. The mill gave infinite trouble and the attempt to make sheet iron on it was never entirely successful, also it failed to roll light flue iron satisfactorily as the top and middle rolls were not heavy enough to make the friction necessary to drive them and the mill was finally scrapped.

In 1872-1873 the east mill was built. The equipment was a three-high 22 x 54 mill, which was afterwards, in 1880, changed to 24 x 72, and in 1896 to a 26 x 72 mill. This mill had two heating furnaces and an open annealing furnace. A 20-inch bar mill was built. This was a three-high mill, patented by Alan Wood, Jr., and the only one of its type ever built. The mill had three stands of rolls, one 7¼-inch wide, one 10-inch wide and one which had rolls 5 inches wide and an extra set of 4-inch rolls.

Three heating furnaces were built for this mill. There was a rotary squeezer and a steam hammer and eight double-puddling furnaces. When this mill was erected it was considered a model mill, well laid out, and it was frequently visited by people interested in mill building.

In 1891 the north mill was built. This was a 22 x 54 three-high mill with two heating furnaces and one annealing furnace.

In 1899 the old west mill puddling furnaces and 7-inch bar mill were torn down, and in their place was built the No. 4 flue mill, which was a three-high 26 x 72-inch mill, with two heating furnaces and one open annealing furnace.

In 1913-1914 the west flue mill was rebuilt and No. 4 sheet mill changed into No. 5 flue mill, with 24 x 48 rolls, and this mill has been very successful in rolling light gauge sheets.

In 1914-1915 the east flue mill was rebuilt and equipped with a 36 x 54 Newbold engine and a 26 x 72 United Engineering and Foundry Company train.

In 1917 a new steel shipping building was erected on the east side of the north and east flue mills for trimming and shipping the product of these mills. This building has a crane for handling plates with a magnet.



LATER RESIDENCE OF ALAN WOOD
1525 ARCH STREET, PHILADELPHIA



SECOND STREET STORE OF JAMES WOOD & SON
BIRTHPLACE OF W. DEWEES WOOD

Up to 1913 there was not an electric motor in use at the mill, but since then old small steam engines and steam pumps have been replaced with motors and this policy has been continued very extensively since the high-tension power line was built along the canal from Ivy Rock to the mill, which line went into service July 1, 1918.

A pulverized coal plant has also been built and all the furnaces in the mill have been changed from hand and stoker-fired into pulverized coal burning furnaces.

Mr. Alan Wood, Jr., built the mill in 1857 and managed it until 1876, when he was elected to Congress.

Mr. Howard Wood came to the mill in 1866, and took charge of the mill and managed it from 1876 until his death, July 1st, 1911. He was a member of the old firm, and when it reorganized (December 28th, 1885) as a corporation, was elected president and served in that capacity until his death.

No history of the Schuylkill Iron Works would be complete without paying tribute to the untiring efforts of Mr. Alan Wood, Jr., and Mr. Howard Wood, both of whom worked early and late in their efforts to improve the mill and keep its products up to a high standard and quality.

Stores and Offices in Philadelphia

In 1826, the store and home of James Wood & Son in Philadelphia was located at 161 North Second Street. It is first included in the City Directory in 1830, the number being changed in 1858 to "223." Here James Wood & Son sold not only saws, shovels, spades and sheet iron made by them, but a general line of hardware.

Gradually as the production of their mill increased, they confined themselves more and more to their own manufactures and gave up the hardware business.

James and Alan Wood used this store in conjunction till 1843, when Alan joined with his brothers, John and Wm. W. Wood, for a short time under the title of Wood & Bros., and rented a store at No. 3 North Fifth Street. In 1844, however, when Alan Wood bought the Delaware Iron Works and ended partnership relations with his father and brothers, he took the new store on Fifth Street, while James Wood & Sons retained the old Second Street store. The store was used practically continuously (Note x) by them later under the title of J. Wood & Bros. (Note y) until 1905 or 1906, and was sold in 1912.

The Fifth Street store was kept by Alan Wood until 1858, when he located at No. 38 North Front Street. This was the year following the building of Schuylkill Iron Works and the formation of the Alan Wood & Co., the original partners being Alan Wood, Lewis A. Lukens and two of Alan Wood's sons, Alan, Jr., and Thomas Wood.

(x) For a brief time in 1848 and following, the store was rented to Edward Williams.

(y) In 1860 the partners of J. Wood & Bros., were John, William W., David L., and T. Chalkley Wood.



THOMAS WOOD

Son of Alan Wood, born December 12, 1827, at Wooddale, Delaware.

A partner in the Alan Wood & Co., he conducted the commercial end of the business in Philadelphia with great ability, till his death, May 24, 1880.

While Alan, Jr., devoted himself to the new mill at Conshohocken, Thomas Wood, who had been educated as a lawyer, ably assisted his father and, until his death at the age of 53, in 1880, directed the commercial end of the business. To his foresight and ability the company owed much of its success.

In 1864, Alan Wood & Co. removed to 519 Arch Street, where they maintained a warehouse with a large stock of plates and sheets. In 1870, Mr. Wood's partners were his sons, Alan, Jr., Thomas and Howard, and Lewis A. Lukens. Five years later, Charles and Jawood Lukens (Note z), sons of Lewis A. Lukens, were also members of the firm.

The business was incorporated December 28th, 1885, as the Alan Wood Co., the first officers being, Howard Wood, president; Alan Wood, Jr., treasurer, and Jonathan R. Jones, secretary and assistant treasurer.

In 1910, the Alan Wood Iron & Steel Co., which, as elsewhere related, had incorporated in 1901 and taken over the Alan Wood Co., on July 1st, 1903, gave up the warehouse and removed its offices to the Morris Building, thence to the present offices in the Widener Building in 1915.

The W. Dewees Wood Company, McKeesport, Pa.

Mr. W. Dewees Wood, son of Alan Wood, was born in Philadelphia, April 19th, 1826. At the age of twenty-five years, having acquired a practical knowledge of the sheet iron industry in the employ of his father at Wooddale, he went to McKeesport, Pa., and, in company with Richard B. Gilpin, his father-in-law, built the sheet iron mill known as the McKeesport Iron Works. Mr. Gilpin sold his interest in the plant in 1855 to Max Moorhead and George F. McClain. The firm was now known as Wood, Moorhead & Company. In 1857 Mr. Wood, retaining his interest in the McKeesport plant, removed to Wooddale, to assume control of his father's "Delaware Iron Works." There he remained until 1861, when he returned to McKeesport. In the succeeding year his partners withdrew, and Alan Wood Lukens, his cousin, joined him in the firm as Wood & Lukens. Mr. Lukens withdrew later, and Mr. Wood took into partnership three sons, Richard G., Alan W., and Thomas D. Wood. The firm existed until 1888, when it was incorporated under the name of the W. Dewees Wood Company. The Russian sheet iron made at this plant, called by Mr. Wood "planished iron," has almost superseded the imported article in this market. Other enterprises of Mr. W. Dewees Wood were the Wellsville Plate and Sheet Iron Company, at Wellsville, Ohio, which he founded in 1880, and the Woodson Company, on the Monongahela River, a few miles above Elizabeth. This was under construction when the firm sold out in 1900.

(z) Mr. Charles Lukens was the father of Wm. W. Lukens, now President of the Company.

Mr. Jawood Lukens soon afterward left the firm and started a pipe mill which later became the Longmead Iron Works and operated in Conshohocken until about 1907.



W. DEWEES WOOD

Oldest son of Alan Wood, was born in Philadelphia April 17, 1826. At the age of 18 he took charge of Delaware Iron Works under his father, where he remained till 1851, when he removed to McKeesport to start the McKeesport Iron Works. In 1857, owing to the business depression, he was unable to operate the McKeesport mill and returned to Delaware, where he resumed charge of the Delaware Iron Works. In 1861 conditions having changed for the better, he went back to McKeesport and founded the business out of which grew the W. Dewees Wood Co.

To him chiefly belongs the credit of perfecting the process of manufacturing planished iron, till eventually the W. Dewees Wood product excelled the famous Russian iron.

He married Rosalind Gilpin in 1848, from which union there were four sons and three daughters.

He remained president of the W. Dewees Wood Co. till his death, January 2, 1899.

FOR SALE

W. DEWEES WOOD
COMPANY'S



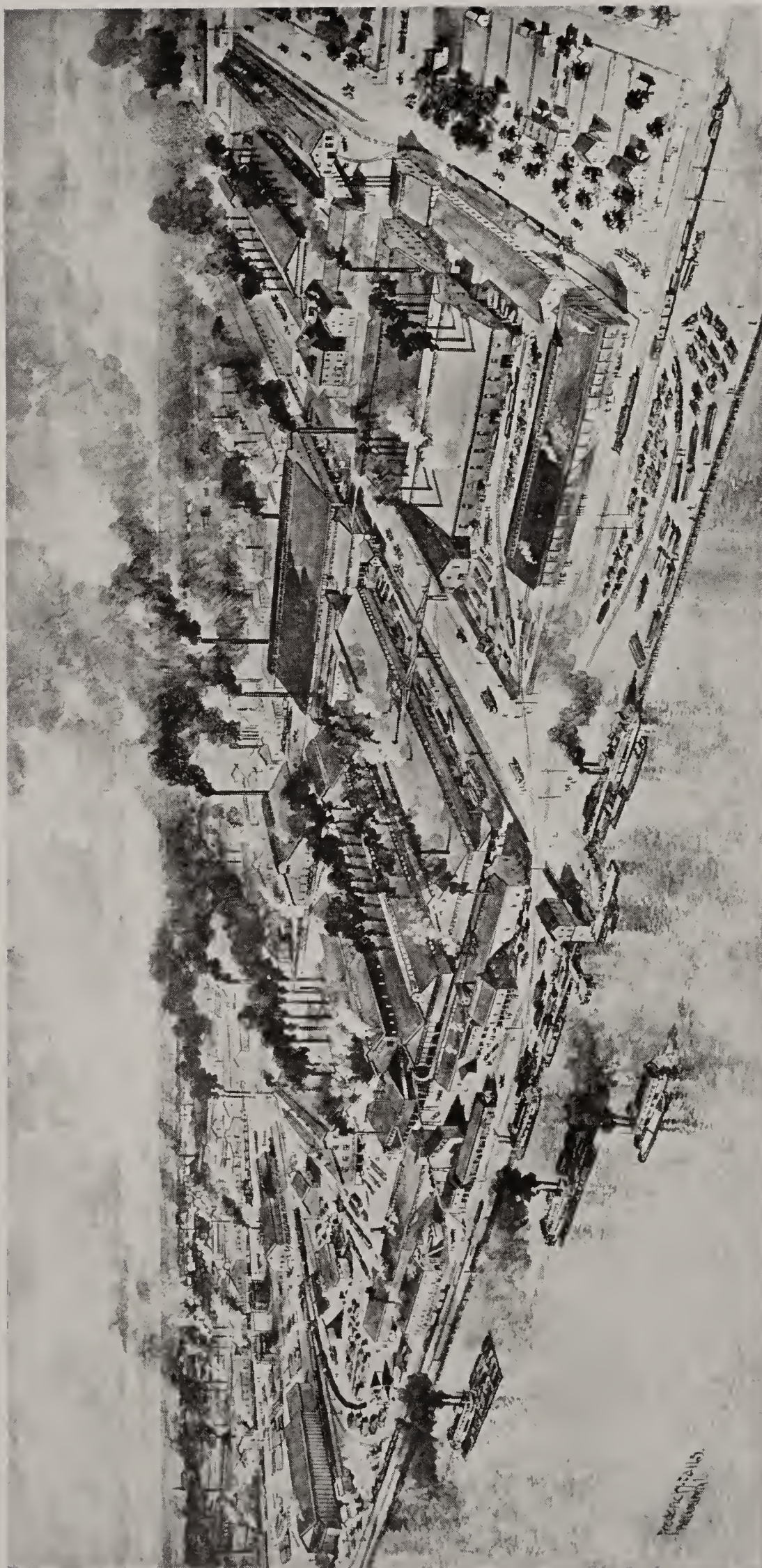
PAT. PLANISHED

SHEET IRON.

PATENTED

OCT. 17 th 1876.	JAN. 10 th 1882.	MAR. 4 th 1884.	JAN. 6 th 1885.
FEB. 6 th 1877.	JAN. 1 st 1884.	APR. 15 th 1884.	AUG. 31 st 1886.
DEC. 10 th 1878.	FEB. 12 th 1884.	JUNE 10 th 1884.	JAN. 1 st 1889.

TRADE MARK—W. DEWEES WOOD CO.



W. DEWEES WOOD CO. WORKS AT MCKEESPORT, PA.



WELLSVILLE PLANT OF THE W. DEWEEES WOOD CO.

At McKeesport he carried on experiments on an extensive scale in annealing, cleaning, oxidizing and polishing processes. About the year 1872 he started to give the material a highly finished mottled surface by polishing the sheet under planishing hammers with large chilled face dies; and thereby gave it the appearance which was one of the chief peculiarities of the Russian iron. From year to year the product has been further improved, so that the sheets which are now being turned out at the works (which, in 1900, came into possession of the American Sheet Steel Company) surpass the original Russian product in finish and uniformity of gauge, and have driven the latter out of the American market almost entirely.

The crest of the W. Dewees Wood Company was an eagle rampant over a prostrate bear, this signifying the triumph of American ingenuity over Russia in the production of polished or "planished" sheet plate. Successive patents and tireless experimentation at the McKeesport plant resulted in the perfection there attained, and the product has found countless uses.

Under control of Mr. Wood, this extensive concern, founded in 1851, eventually employed 1500 workmen. The process of manufacture has been thus outlined:

The black sheets, known to the trade as "WOOD'S REFINED SHEET IRON," were originally manufactured from 100% mixture of Bessemer pig iron in the puddling furnaces. Afterwards, when steel replaced iron, the black sheets were made from acid open hearth steel, using entirely refined pig iron, known as "WASH METAL."

The process of manufacturing "PLANISHED SHEET IRON" started with a four-fifths mixture of charcoal pig and one-fifth mixture of Bessemer pig iron. This was put through a refining fire—the result of which was known as "FORGE PLATE." This was put through a "knobling furnace," in which charcoal was used as fuel under a blast. On leaving the knobling furnace, it came out in a shape which was technically known as a "loop." This was put under the hammer and converted into blooms which were, in turn, rolled into bars; after which they were repled and rerolled. These bars were rolled into sheets and were then taken to the finishing department—the final process of manufacture being the heating, hammering, trimming, rehammering, sorting, packing and stenciling.

Alan Wood Iron & Steel Company

By 1901 the Alan Wood Company had attained an annual production of 25,000 tons of sheets and light plates, consisting of both iron and steel. The firm had its own puddle mill for producing iron, but had to buy steel billets to meet the ever-increasing demand for steel sheets.

Billets were hard to procure when business was brisk, and in 1900 the company was obliged to import a considerable amount. The need of a steel mill was sorely felt, and to meet



MIXER AND OPEN HEARTH BUILDING AT IVY ROCK

this contingency, largely at the instance of the Hon. Alan Wood, Jr., the Alan Wood Iron & Steel Company was incorporated November 21st, 1901.

Mr. Richard G. Wood, his son, Alan D. Wood, and brothers, Alan W. and Thomas D. Wood, having in the previous year after the death of their father, disposed of the W. Dewees Wood Company, the Wellsville mill and the Woodson property, with machinery purchased to build a steel plant thereon, to the American Sheet Steel Company, afterward part of the United States Steel Corporation, now associated themselves with the Alan Wood Iron & Steel Company. The company purchased a tract of land (Note a) at Ivy Rock, about a mile north of Conshohocken, and proceeded to build a plant of five 55-ton open hearth furnaces and a 35" blooming mill, which produced its first steel on June 1st, 1903.

On July 1, 1903, the new company took over the Alan Wood Company, thus combining the Schuylkill Iron Works and the steel plant in one company. Three new O. H. furnaces were added to the steel works in 1905, and a fourth one completed February, 1907, making a total of nine furnaces, with a capacity of 250,000 tons of steel a year.

The need of hot metal supply now began to be sorely felt, and in 1909 negotiations were entered into with Richard Heckscher & Sons Company, whose blast furnaces were situated on the other bank of the Schuylkill River directly opposite the steel works.

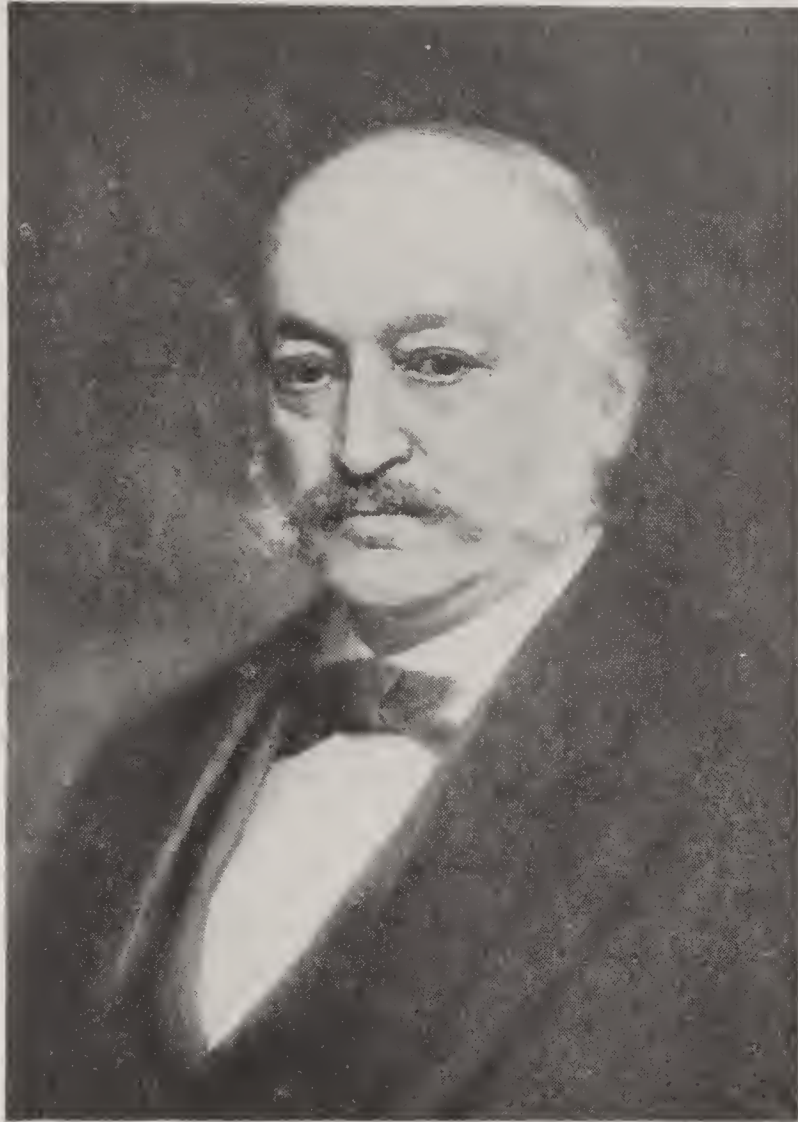
Agreement was made for the consolidation of the two companies, which was legally consummated December 1st, 1911. In the meantime, through the Upper Merion & Plymouth Railroad Company, a terminal railroad, which had been formed in 1907 (July 8th) by the Alan Wood Iron & Steel Company, a railroad bridge was constructed across the Schuylkill River, thus connecting the two plants. Also a hot metal mixer was built on the north end of the open hearth building, and by 1910 the firm had the advantage of hot metal which increased its steel making capacity about 30%.

Richard Heckscher and Richard Heckscher & Sons Company

Mr. Richard Heckscher came to America in the year 1842 at the age of twenty years, and, while yet a young man, became an important factor in the development of transportation, coal-mining and other enterprises in Pennsylvania in association with Charles A. Heckscher, of New York City.

He became president of the New York & Schuylkill Coal Company and manager of the Forest Improvement Company. He operated a number of mines in Schuylkill County. In 1867-8,

(a) The old Carey Farm.



RICHARD HECKSCHER
Founder and President of Richard Heckscher
& Sons Co.
Born 1822, died 1901.



MAURICE HECKSCHER
 Associated with his father in
 Richard Heckscher & Sons Co.
 Died 1905.



GUSTAV A. HECKSCHER
 Manager of Blast Furnaces. Son of
 Richard Heckscher.



J. AUSTIN HECKSHER
President of Richard Heckscher & Sons Co.
after his father's death (1901). Director
in Alan Wood Iron & Steel Co. at
the time of his death in 1910.



R. P. HECKSHER
Associated with his father in
Richard Heckscher & Sons Co.
Died 1903.

in company with August Heckscher and Jacob Glover, he was active in opening the important Kohineer Collieries at Shenandoah, Pa. His energy and great technical skill enabled him to introduce many improvements in anthracite coal mining methods. He became president of the Lehigh Lime and Iron Company, at Bethlehem, Pa., and of Richard Heckscher & Sons Company, operating blast furnaces at Swedeland, on the Schuylkill River, two miles below Norristown. This industry was founded in 1849 by the firm of Potts & Jones, but was bought by Repplier & Lanigan about the end of the Civil War period, the capacity at that time being about 600 tons of iron monthly.

The plant was purchased in 1879 by the Reading Coal and Iron Company. In 1886 it was leased to the Heckschers, who eventually (in 1891) bought it and proceeded greatly to increase its output. Upon the occasion of the lighting of fires in their new furnace No. 2 in January, 1892, Heckscher & Sons entertained a large company of distinguished guests. At that time about two hundred men were carried upon the pay-roll.

Mr. Richard Heckscher died at his residence, 260 South Eighteenth Street, Philadelphia, on July 10th, 1901. He was the father of seven sons and two daughters.



OFFICE AT IVY ROCK, COMPLETED IN 1918

Since the consolidation of the two companies, Messrs. Ledyard Heckscher, Stevens Heckscher and Gustave Heckscher have represented the Heckscher interest in the directorate of the



ORE BRIDGE AND CAR DUMPER AT THE BLAST FURNACES. NOTE THE ORE FALLING OUT OF THE CAR

steel company. The blast furnace plant has been considerably expanded. In 1912 there was finished a third blast furnace, which is now known as No. 2, the old No. 2, having been dismantled in 1917.

In 1913 a new boiler plant was added to utilize the waste gases from the furnace and furnish steam for an electric turbo-generator.

In 1917, in order to meet the demand for iron and steel caused by the European war, the new No. 3 blast furnace and ore yard was started and completed the following year. The furnace was ready to go in blast when the armistice was signed, but due to the immediate cessation of demand for pig iron it was not lighted until January 8th, 1920.

In the meantime, the steel works had not been standing still. An 84" tandem plate mill was started in 1913 and completed in 1914, making its first plate on March 31st of that year. Two heating furnaces were added to this mill in 1916 and another in 1917, making a total of six.

This mill is driven by alternating current motors supplied with electricity from the power plant at Swedeland. It has been copied and duplicated by several of the company's competitors in the West.

In the open hearth department during 1915 the capacity of the old furnaces was increased from fifty-five to sixty-eight tons and three new 80-ton furnaces were begun. These were completed in 1917 and greatly assisted the company in furnishing steel for the war. (Note b.) Waste heat boilers were erected over the new furnaces.

At the blooming mill a new soaking pit was completed in 1917.

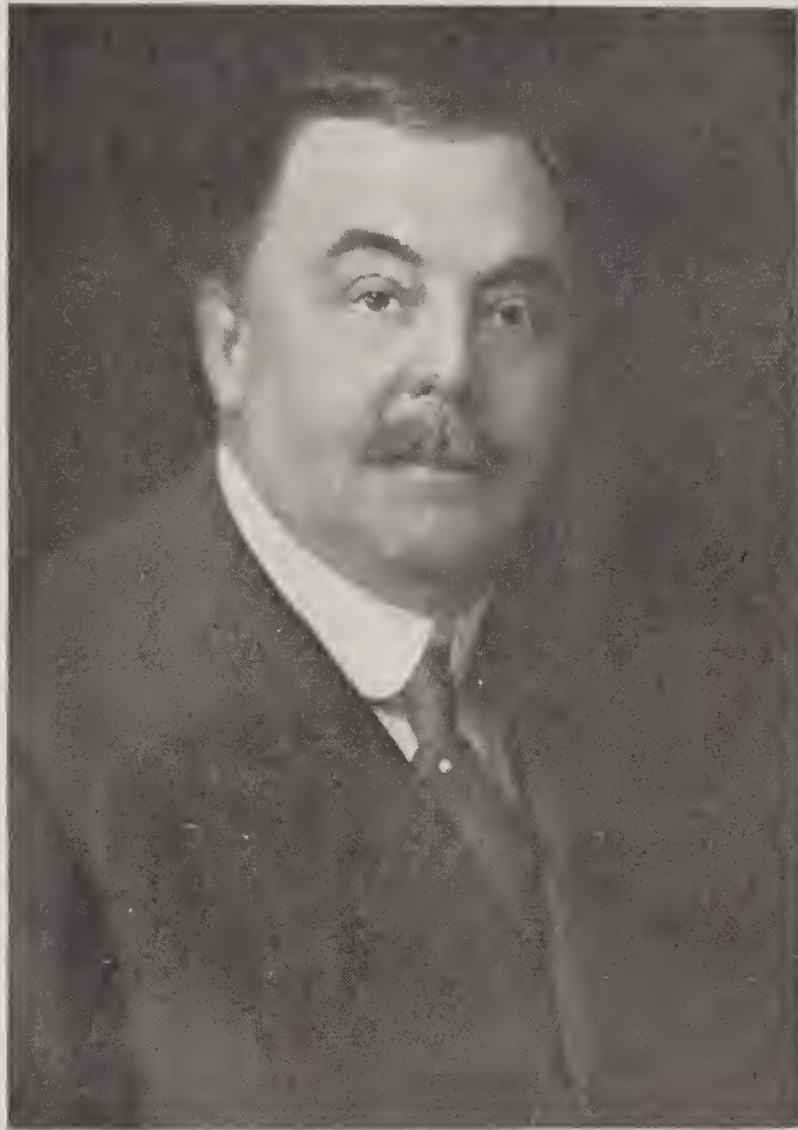
The old office building having been completely outgrown, a new five-story modern building was completed in 1918. In this year also the new machine shops were completed.

Rainey-Wood Coke Company

The need of an assured supply of coke having been felt for some time and the United States Government having urged all steel manufacturers to build by-product coke ovens to supply much-needed toluol and ammonium sulphate for ammunition purposes, the firm entered into negotiations with W. J. Rainey Estate, the result of which was an agreement (June 11th, 1918) for the formation of the Rainey-Wood Coke Company, to be located just north of the blast furnaces at Swedeland. Under this agreement, the Rainey Estate furnishes the coal and the steel company takes the coke, gas and tar.

A contract was entered into with the Government and the construction of the plant was pushed with all speed possible under great difficulties. After the armistice was signed, the

(b) No. 10 furnace was put in operation March 3, 1917; No. 11, April 6, 1917; and No. 12, June 17, 1917.



RICHARD G. WOOD
Chairman

Born at Wooddale, Del., son of W. Dewees Wood. Entering the W. Dewees Company mill at McKeesport in 1868, he ably assisted his father in building up that business, and was president of the Company when it sold out to the American Sheet Steel Co. in 1900. He joined in forming the Alan Wood Iron & Steel Co. in 1901, and as vice-president and manager of the Steel Works was in a large degree responsible for its success. After Mr. Howard Wood's death in 1911, he was president of the Company until January, 1920, when he resigned to become chairman. The Company owes him much for his progressive policy.



JONATHAN R. JONES

Vice-Chairman

Since 1886, Mr. Jones has ably conducted the commercial end of the business.

Secretary and Assistant Treasurer, January 1, 1886. Secretary and Treasurer, 1887 to 1911. Vice-President and Treasurer, 1911 to January, 1920, when he resigned to become Vice-Chairman.



WILLIAM W. LUKENS
President.

With the Company since 1892.
Son of Charles Lukens.



HOWARD WOOD, JR.
Vice-President and Treasurer.
With the Company since 1898.
Son of Howard Wood.



LEDYARD HECKSCHER
Vice-President of Alan Wood Iron
& Steel Co. President of the
Rainey-Wood Coke Co. Son
of Richard Heckscher.



THOS. D. WOOD
 Director since 1910
 Son of W. Dewees Wood
 Associated with his father in the
 W. Dewees Wood Co. at McKeesport, 1878
 to 1897.



ALAN D. WOOD
 In charge of the Purchasing Department.
 Associated with W. Dewees Wood Co. at
 McKeesport, 1892 to 1901.
 Son of Richard G. Wood.



CLEMENT B. WOOD.

Son of Howard Wood. Counsel of the
Company since 1902 and Director since 1911.
Major of Artillery during the European War.



VINCENT P. WOOD

Superintendent of J. Wood Department at
Conshohocken.
With the Company since 1911.
Son of Thos. D. Wood.

need of haste was abated, but nevertheless, by August 26th, 1919, the plant was ready to produce coke.

It has proved its capacity to coke 2,000 tons of coal a day and the yield of coke and by-products has come fully up to expectations.

The sulphate of ammonia is sold principally to manufacturers of commercial fertilizers. The gas and tar are burned at Ivy Rock and supply about half the fuel required there.

Ledyard Heckscher, as the president; Wm. W. Lukens, as a director, and Howard Wood, Jr., as assistant treasurer, represent the Wood interest in the Rainey-Wood Coke Company, while Roy Rainey, as director, and Scott Stewart, as vice president and treasurer, represent the Rainey interests.

Directors and Officers of the Alan Wood Iron & Steel Company

The Directors of the company are: Richard G. Wood, Jonathan R. Jones, William W. Lukens, Thomas D. Wood, Ledyard Heckscher, Gustav A. Heckscher, Stevens Heckscher, Alan D. Wood, Richard G. Wood, Jr., Clement B. Wood and Howard Wood, Jr.

Due to the resignation, after long years of service, of Richard G. Wood as president and Jonathan R. Jones as vice president and treasurer, the company has recently undergone a reorganization. The officers elected January, 1920, are: Richard G. Wood, chairman of the Board; Jonathan R. Jones, vice chairman of the Board; William W. Lukens, president; Ledyard Heckscher, vice president; Howard Wood, Jr., vice president and treasurer; Alan D. Wood, assistant treasurer; John W. Logan, secretary, and A. Markley Harry, assistant treasurer and assistant secretary; Jos. H. Woodhead, assistant secretary.

The managers and superintendents of the company's plants are: Richard G. Wood, Jr., manager steel works department; John E. Mountain, superintendent steel works department; Gustav A. Heckscher, manager blast furnace; George Black, superintendent blast furnaces; William A. Cooper, manager Schuylkill Iron Works and J. Wood department, and Vincent P. Wood, superintendent J. Wood department.

We have now traced the history of the Wood business from the time James Wood began work in 1792 as a country blacksmith to the present (1920), when the company has an annual capacity of nearly a half million tons of pig iron and a full half million tons of open hearth steel, with mills for converting the products into plates, billets and sheets. (Note x.)

The story is of a growth creditable, though by no means phenomenal, yet one that we trust will be of more than passing interest to members of the company.

(x) The present annual capacity is estimated as follows: Four hundred and sixty-eight thousand tons of pig iron; five hundred thousand tons of ingots; three hundred thousand tons of billets; one hundred and twenty-five thousand tons of plates; one hundred thousand tons of sheets. Rainey-Wood Coke Co., five hundred thousand tons of coke, besides by-products.



STEEL WORKS EXECUTIVES, JANUARY, 1919

1. F. L. Mountain Supt. of Bricklaying Department
2. W. H. Burr Asst. Supt. of Electrical Department
3. C. S. Thompson Supt. of Plate Mill
4. G. G. Glass Metallurgist
5. Ben. Kuhlman Master Mechanic
6. F. C. Carter General Storekeeper
7. J. E. Mountain General Superintendent
8. F. E. Lloyd Supt. of Open Hearth
9. A. E. L. Dette Chief Engineer

10. *R. G. Wood, Jr. Asst. Manager
11. J. P. Foley Shipper
12. H. G. Beswick Yard Master
13. †John W. Logan Manager
14. N. H. Herbst Supt. of Blooming Mill
15. C. A. Clayton Employment Agent
16. W. P. Engle Supplies
17. L. J. Staley Timekeeper

* Secretary of Company since 1920

† Manager of Steel Works Department since 1920



SCHUYLKILL IRON WORKS EXECUTIVE FORCE, JANUARY, 1919

- | | | | |
|---------------------------------|--------------------------------|-----------------------------|---------------------------------|
| 1. Frank L. Kelly | Yard Boss | 13. Albert Hannum | Supt. Mill Labor |
| 2. Thomas J. Robinson, Jr. | Machinist | 14. Benjamin Hartman | Foreman Carpenter Shop |
| 3. William M. Lamon | Foreman Electrical Department | 15. George Hastings | Millwright |
| 4. Edward J. Gillespie | Foreman Tin Shop | 16. E. I. Ambler | Receiving Clerk and Yard Master |
| 5. James M. Morrison | Foreman Machine Shop | 17. William W. Ambler | Assistant Manager |
| 6. James Bickhart | Boss Puddler | 18. William A. Cooper | Manager |
| 7. Ellwood Noblitt | Boss Bricklayer | 19. Joseph W. Smith | Mechanical Engineer |
| 8. William Cleaver | Supt. West and No. 4 Flue Mill | 20. Clement Bergey | Shipping Clerk |
| 9. Thomas Robinson, Sr. | Mill Labor Supt., retired | 21. Louis R. Derr | Cashier |
| 10. Harry Buckle | Supt. No. 5 Flue Mill | 22. Biddle Wood | Asst. Supt. No. 4 Flue Mill |
| 11. Alan W. Jones | Supt. East and North Flue Mill | 23. Jerry Motz | Asst. Boss Puddler |
| 12. I. H. Shoemaker | Supt. Sheet Mills | | |



BLAST FURNACE—EXECUTIVE FORCE, JANUARY, 1919

- | | | | |
|----------------------------|-----------------|-------------------------------|----------------------|
| 1. Charles W. Mackay | Master Mechanic | 6. Glen C. Hanna | Asst. Superintendent |
| 2. Bernard Gallagher | Ice Blower | 7. Charles W. Hendricks | Clerk |
| 3. George M. Black | Superintendent | 8. James Quarry | Labor Foreman |
| 4. Edward Clyde | Trestle Foreman | 9. George Lodge, Jr. | Chief Clerk |
| 5. Jay Raup | Clerk | 10. Barclay Wynn | Carpenter Foreman |



J. Wood DEPARTMENT—EXECUTIVE FORCE

- | | | |
|---------------------------|---------------------------|------------------|
| 1. Richard Pearson | 7. Jacob Holland | Asst. Millwright |
| 2. Robert C. Ronan | 8. Vincent P. Wood | Superintendent |
| 3. Leonard B. Smith | 9. Christ. Speaker | Millwright |
| 4. James W. Wood | 10. Clarence Nippes | Bricklayer |
| 5. S. Gordon Smythe | 11. George Royer | Labor Boss |
| 6. James Corrado | | Carpenter |



SOME OF THE 168 HOUSES FOR WORKMEN OWNED BY THE COMPANY.

Upper View—Foremen's houses at Swedeland.

Lower View—Workmen's houses at Swedeland.



ORE BRIDGE AND BLAST FURNACES AT SWEDELAND. LIMESTONE PILE IN FOREGROUND.

Supplementary

Notes About

Early Employees

and

Other Items of Interest

Some Early Employees

By WILLIAM A. COOPER

James Morrison began to work at the Delaware Iron Works in 1831. He was a sheet iron roller, but like all men at the mill, did all kinds of work, including work on the farm when the farm work was more pressing than the mill work. He came to Conshohocken as a roller soon after the Schuylkill Iron Works was built, and finally was a watchman, and died in October, 1885, after 54 years' service.

His son, William Morrison, who had learned his trade as a machinist with Pusey & Jones, of Wilmington, Delaware, came to work at Schuylkill Iron Works September 1st, 1859, as foreman of the machine shop. He was one of the old-fashioned kind of machinists who learned his trade before the days of special machinery and was most resourceful and ingenious in devising ways and means to do unusual and difficult pieces of work, and never let any job get the best of him.

He died June 1st, 1897, after nearly 38 years of service, and was succeeded by his son, James Morrison, as foreman of the machine shop.

James Morrison came to work in the machine shop December 17th, 1877, and has been with us ever since, being foreman of the machine shop after his father's death. He is the third generation of his family in the employ of the company, which service comprises 86 years.

Benjamin F. Lobb worked at the Delaware Iron Works; came to Conshohocken in 1857 when the Schuylkill Iron Works were built, and died December 4, 1889.

He had charge of keeping all the roll trains in order and always "lined up" the mills and was very mysterious about lining up a three-high mill, and felt that he had information on this subject which no one else had, once telling a superintendent who was seeking information from the fountain-head, "that what I know about a three-high mill will die with me."

He was successful in his lining up and did much to establish the reputation of the company for good looking sheets, but since his death we have managed still to line up a three-high mill. In addition to his care of the mills he had charge of the standing turn men, filling all vacancies and putting men in the places of men when off work for any cause.

After his death his duties were divided. He was very arbitrary and "cranky," but under all conditions was loyal to the company. One son, Matthew Lobb, who is a roll turner, and several grandsons are still with the company. Benjamin F. Lobb was employed at the Delaware Mill, where he worked as early as 1855.

Thomas Robinson was born in England, was working for Peter Cooper at Trenton in 1858, and hearing that a mill was being built at Conshohocken, came over and applied to Alan Wood, Senior, who hired him to work on the Bar Mill, February, 1858.

In 1859 he spent three months at Delaware Iron Works in experimenting on Planished Iron. They never had a hand spanner wheel on the mill, and his first job was helping the blacksmith make a spanner wheel. He tells us of the difficulties they had in turning the rolls, one man doing the turning with the roll in the housing, and another man watching the gate to the water wheel, and trying to make the wheel run slow, often letting the roll stop, and at other times "go too fast," to the great annoyance and irritation of the man who was doing the turning.

One day Mr. W. Dewees Wood was turning the roll and for a short time went up to his house and left the roll turning to Peter Rice, with explicit instructions as to what he was to do. When he returned Peter had left his tool too long in one place and cut a groove in the face of the roll, which necessitated cutting off the entire face of the roll, taking much time and wasting good rolling surface. When Mr. Wood returned and saw the condition of the roll Peter had his verbal punishment.

After Thomas Robinson returned from Delaware he was a roller and afterwards stocker in the East Mill until Benjamin F. Lobb's death, when he took charge of the standing turn men. In this position he was a great success, having much executive ability and a force of character which always kept him master of the situation. He was a terror to the shirker and the drinker, and would not put up with or tolerate any disobedience of the rules of the establishment.

On the fiftieth anniversary of his service with the company they presented him with a gold watch, properly inscribed. In 1915 he retired, is still living, and frequently visits the mill, and is interested in watching what is going on.

George Churnsides' name appears on the Delaware Iron Works' books on October 4th, 1830, and he may have been employed there before. He was very versatile, and in his time did many kinds of work, as the following extracts from an old diary kept at Delaware Iron Works will show:

July 7th,	1840—George Churnsides	blacksmithing.
July 10th,	1840—	same harvesting.
July 10th,	1840—	same putting up wall at forebay.
July 17th,	1840—	same putting up wall in tail race.
July 21st,	1840—	Repairing water wheel.

him and knew him well. He was a most forceful and able manager, dominated every situation, given to plain speaking, but bore no malice.

In his intercourse with the mill men he was governed by a spirit of fairness and justice, never minced words and the men admired his courage, and after the "hurt was over" did not feel unkindly towards him.

When I told Edward J. Caine, who had been our furnace builder for 25 years, of Mr. Wood's death, he said: "Well, I have had very many plain talks with 'the boss,' but I liked to work for him, as you always knew just where you stood with him and whether your work was satisfactory."

He was a most excellent example of the fast disappearing "Iron Master."

James Colen, a "roller," entered the army, and was wounded in the ankle at Gettysburg and taken to the hospital in Baltimore. Mr. Alan Wood, Jr., hearing of his being wounded in Baltimore, wrote to his cousins, Mrs. Charles Coates and Mrs. Tyson, to look him up, which they did, and James Colen often referred to the good care which they gave him. He always had trouble with his ankle and gave up rolling, and for many years stocked in the West Flue Mill, and was always one of the best and most loyal men in the mill. He retired about 1903, took a trip to Europe, and died February 19th, 1917.

Joseph Colen was also a sheet and flue roller and also worked at many different jobs in the mill, the last one being scrap packing. He retired May, 1913, on a pension, and died August 26th, 1915.

When a boy at Delaware Iron Works, and swimming in the mill pond, Mr. Howard Wood in playfulness pushed Joseph Colen in the water. Being unable to swim he was rescued with difficulty. In many ways this was fortunate for "Joe," as in after life many shortcomings were overlooked on this account.

Frederick Wood was a bar iron roller and an old employee. He was one of the men who broke the strike in 1876.

After he gave up rolling he was watchman for a number of years, was finally pensioned, and died at the age of 83 years on September 23rd, 1917.

John Campbell came to work at Schuylkill Iron Works soon after it was built, and for many years was roller on the West Flue Mill, and after giving up this job was stocker on the East Flue and No. 4 Flue Mills. He died May 10th, 1908. He was secretary of the Schuylkill Relief Association and a very reliable man.

It was one of his boasts that he had rolled plates heated by three generations of the Beaver family. The first of the family was Henry Beaver, who was a heater soon after the mill was built, and after he retired was janitor of the Presbyterian Church in Conshohocken. He was a tall, venerable-looking man with a long white beard, and looked the patriarch.

His son, Frank Beaver, was also a heater for a number of years and retired.

His grandson, Samuel Beaver, came to work with us as a boy in 1891, and is a heater on the North Flue Mill.

Thomas Murray came to work at Schuylkill Iron Works early in its history and was a catcher on the West Flue Mill until he gave it up, about 1905, and accepted a position as watchman at the Ivy Rock Steel plant, and on December 4th, 1907, while on his way to work dropped dead at the Philadelphia & Reading Station in Conshohocken. He was thoroughly reliable and a good citizen.

His son, Harry Murray, came to work here in 1879 and is still with us as a trimmer. His grandson, Harry Murray, Jr., came to work in April 1915, and is also still with us, being another case of three generations in one family.

Matthew Hastings came to work at the mill soon after it was built and worked on the Bar Mill, and later became a watchman.

His son, George Hastings, came to work in 1885, and soon after his uncle, Benjamin F. Lobb, died, succeeded him in charge of the mill machinery and still has this position.

Simon Kelly came to work at Schuylkill Iron Works in the spring of 1858 and stocked the Puddle Mill for 25 years, and died in 1888. His son, John P. Kelly, came to work in 1871. He was a bar roller and Flue Mill roller and is now a Flue Mill stocker.

Samuel Townsend was born some 80 years ago in an old log house which stood under the old Coffee Bean tree, which tree was still standing until a few years ago in front of the house of David Wood, at Fifth Avenue and Fayette Street, Conshohocken.

As a young man he hauled ore, and came to work in the mill soon after it was built, as a sheet roller and grate furnace man. After giving up work as a mill man he was our yard foreman and later watchman, until he retired upon a pension, and is still living.

In his early life he was a heavy drinker, but reformed entirely and became a most exemplary man and was always a hard worker who did his best. He was familiarly called "Old Sam."

In our Puddle Mill we have had some very good men.

James Bickhardt came to work for us in July, 1868, and with the exception of about two years has been with us ever since, and was our Puddle boss until we discontinued puddling, in March, 1916, and he is still with us.

Jerry Motz came from Blandon, Berks County, in 1875, and since 1883 was our night puddle boss until we discontinued puddling, and since then has weighed billets for us.

George Pierson was also a night puddle boss and is now retired on a pension.

Amongst the old puddlers was Charles Deane, the Radcliff brothers from Wales, Captain Bloomhall, who was puddle boss; James Carrigan, Patty Mullen, John Bennet, Owen Hughes, Edward O'Neill, Robert Burke and Alfred Crocker.

William Plank started to work for the company in January, 1860, and worked continuously until September 11th, 1917—57½ years, losing very little time, in fact, almost no time during that period. He worked at almost every job in the mill, rolling and spannering, and at the latter job was considered an authority, and was frequently consulted by Mr. Howard Wood, when the men were not making level plates.

For 35 or 40 years before his death he was our principal roll turner and was turning rolls to within 10 days of his death, at which time he was the oldest living active employee of the company.

He was a very positive and determined character, which characteristics continued to the last. The day before his death, while in bed he wanted to be shaved, and to humor him they covered his face with lather and wiped it off; but this was not satisfactory, and they had to produce the razor and properly scrape his face.

He was intensely loyal to the company and to the members of the Wood family who were at the mill. At the time of Mr. Howard Wood's death, in 1911, I went to him and told him that the members of the family desired at the funeral the presence of the oldest employees of the company. His reply was characteristic: "I am glad the family want me, as I had made up my mind that whether the family wanted me or didn't want me, I was going to Howard Wood's funeral." At the funeral he took hold of Howard Wood's hand and showed much feeling, and although the announcement was made that the interment was private, he was at the cemetery at Bryn Mawr.

He was in every way a man of the highest integrity and a good citizen.

In the Office

Richard Griffith was the clerk, cashier and timekeeper until he left, in August, 1871.

Mr. Howard Wood frequently told of a drunken puddler coming into the office and being abusive to Griffith, and Griffith started to put him out, and after jabbing the puddler in the head several times with his pen, threw him out of the office, and as he resumed work at his desk quietly remarked, as he was putting a new pen in the holder, that he had always heard that the pen was mightier than the sword.

Alfred Craft succeeded Richard Griffith, commencing August 14th, 1871, and continuing service until he died, March 9th, 1911. He was absolutely accurate and careful and always had the interests of the company in mind.

The above are a few of the men who gave long service to the company and helped in building it up to its present proportions. There are a great many more who were early employees whose descendants are still in the company.

A Testimonial from the Workers at J. Wood & Bros. Co.

The year 1873 witnessed an industrial paralysis which prostrated the manufactures of the nation, none more so than that of iron and steel production. Despite this condition J. Wood & Bros. continued "business as usual." At the close of the year the employees of the firm to the number of 141 men presented the Hon. John Wood with an address, from which the following paragraphs are quoted:

"You alone, amongst all the iron masters and manufacturers of this section of the old Keystone State, were the only man who never suspended any portion of the extensive works under your control even for a single day during the last disastrous financial crisis. You have conclusively shown to the world that the panic caused by the defalcation of Jay Cook & Co., with all the consequent disasters brought thereby on the banking institutions of the Nation, had for you no terrors!"

"You have passed through this fiery ordeal with the most unsullied honor! nobly upholding the well-established reputation of your firm for financial integrity, as well as for its genuine liberality and open-handed generosity towards its employees. In so doing you have earned for yourself and for the firm of which you are the honored head, the lasting gratitude and heartfelt esteem of your men for that steady and remunerative employment afforded them, and which we see denied to a large number of our less fortunate fellow-citizens."

As a matter of record, the names of the workmen then employed by the firm, some of them for many preceding years, are here preserved.

Terrence Quinn
William Burton
Stephen Mullen
Daniel Slattery
John Townsend
Chas. Herron
James Kenworthy
Levi Whiteman
George Walsh
William Ray
W. B. Forrest
J. W. Reinhart
Robert W. Hill
Nathaniel Sikes
Frank Atkinson
William Tolan
Chas. Binns
Edwd. Downey
Frank Jones
James McGinley

Timothy Connolly
Bernard Loughery
Edmond Ratcliffe
William Simpson
James Harkins
William Ford
John Hummell
A. B. Wood
John Leahey
Albert Mattson
George Brown
Jas. Kelly
Eugene Atkinson
John McAdams
Thos. Kenna
Johnson Dougherty
John Smith
Leslie Stewart
Jas. Crawford
Dennis Ford

Thos. McFetridge
John McFeeters
William Williams
T. McFillemy
John Ryan
Timothy Hushen
John Righter
William Lowery
I. A. Crossmore
Freeman Fleck
Richard Dalby
Owen Quinn
Benjamin Shackleton
Patrick Harper
Frank McHugh
Thos. Hushen
Andrew Knox
John Haines
Michael Wall
Edwd. English

John Parker
W. Wagner
John Razor
James Crossmore
Jerry Crowley
Hugh Donnelly
Cornelius McGinley
Hugh Harkins
George Royer
Henry Holland
Thos. Platte
John Dugan
Samuel McCord
Chris. Speaker
Albert Wagner
Chris. Fleck
John Mellon
Matthew Slinker
William Davis
J. Mesmer
Alex. Hauson
George Pass
Jas. Elliott
Thos. Pierce
John Harrington
John McGinley
John Cleaver

William Cleaver
Thos. Rossiter
D. Casey
Robert McCurdy
Washington Jones
Dennis O'Brien
John Hayes
Joseph O'Neil
John Peacock
Holland Nixon
B. F. Baldwin
John Tuttle
George McCord
Albert Hawley
Chas. Wood
John Byrne
John Herron
Samuel Binns
Philip Nagle
Joseph Wheeler
John McCarter
C. Waltimeyer
Nathan L. Jones
H. Knoult
Emanuel Yocum
John Hampton
John Slinker

Michael Wood
William Low
Thos. McKearns
James Crowley
Michael Burns
Patrick Duffy
Timothy Ford
Richard Farrell
Nicholas Brazzle
Joab. Kenouse
F. C. Smith
Amos Custer
H. A. Hammill
Daniel Earle
Thos. Wood
Euclid Platt
T. B. Woodward
John Royer
F. Huzzard
Samuel Townsend
John Elliott
William Kay
W. Huzzard
W. Clarke
Samuel Harmer
Robert McKearns
Robert Hanna

LIST OF PATENTS

- February 10, 1525—JAMES WOOD..Invention of a new and useful improve-
ment in making shovels and spades.
- July 20, 1831—JAMES WOOD.....Invention of a new and useful im-
provement in the mode of manufactur-
ing rollers of cast iron for laminating
metals and for other purposes.
- October 12, 1842—JAMES WOOD
and WILLIAM W. WOOD..Invention of a new and useful im-
provement in the process of manufac-
turing sheet iron, which iron is de-
nominated American glazed sheet iron.
- April 15, 1851—JOHN WOOD and
WILLIAM W. WOOD..Invention of new and useful improve-
ments in the process of manufacturing
glazed sheet iron.
- January 8, 1878—ALAN WOOD
& CO...Process for lettering annealed plates
assigned to Company by Howard
Wood. Expired January 8, 1895.
- March 2, 1897—ALAN WOOD
IRON AND STEEL CO...Process of box annealing and appara-
tus therefor, assigned to Company by
Howard Wood. Expired 3-2-1914.
- Sept. 26, 1905—ALAN WOOD, 3rd,
HARRY LEWIS..Roller stamping device for marking
heat number and company's name on
billets coming hot from the rolls.
- Aug. 23, 1910—ALAN WOOD, 3rd..Waterback for gas ports.

In addition to the above patents, the Company enjoys the use of a de-
vice invented by Alan D. Wood, known as "Magnetic Hold Down," which
is employed on shears to hold the plates fast to the table while the plate
is being sheared. The right to use this device has been sold to several other
steel companies.



OBVERSE VIEW OF MEDALS AWARDED TO THE FIRM.



REVERSE VIEW OF MEDALS AWARDED TO THE FIRM.

In looking up the records of the product of Schuylkill Iron Works we could not find at this office the records before 1868, and believe these records were destroyed by the flood of 1869, as were many records and drawings which were in the office. The office, at that time, was a low frame building which stood between the west mill and our present watchman's office. Our watchman's office at that time was in a residence belonging to Evan Radcliffe, a puddler. Our present office was built in 1872.

In looking over the product it is interesting to note the good results of better equipment and of improved methods in the output of the mill.

In 1868 there were five mills, No. 1, No. 3 and No. 4 sheet mills, with 20 x 42-inch rolls, No. 2 sheet mill with 19 x 48-inch rolls, and the west flue mill, with 22 x 54-inch rolls.

In 1870 the little three-high mill was run for a time.

In 1873 the east flue mill was finished and run for a short time, but not regularly, until the latter part of 1880, when the mill was changed to 24 x 72 mill and the product was increased.

In 1872 No. 2 sheet mill rolls were increased to 20-inch diameter and No. 4 sheet mill to 22-inch diameter.

In 1891 the north flue mill was built, but the then three flue mills did not run regularly until 1899.

In 1896 the west flue mill rolls were changed to 24 x 54-inch and the No. 2 sheet mill rolls to 22 x 48-inch.

In 1902 the diameter of the necks of the rolls began to be increased on the sheet and flue mills.

In 1905 the north flue mill started on three turns instead of two turns, and in 1913 No. 3 sheet mill started on three turns.

In 1909 the east, west and No. 4 flue mills started on three turns.

From 1903 to 1913 on some of the sheet mills were rolled No. 14 and No. 16 gauge, principally chute steel, which increased the product. Before September 1st, 1913, we could only carry 60 lbs. of steam, and had an insufficient quantity at even that pressure, and frequent stops for steam were made, which cut down the product and wasted much steel in the furnaces.

On September 1st, 1913, we started up No. 1 and No. 2 Babcock & Wilcox boilers, and by that time had changed the old steam pipes and steam drums so that we carried 100 lbs. pressure, but still were short of steam, and on September 27th, 1915, we started up No. 3 and No. 4 Babcock & Wilcox boilers, and since then have had little trouble with shortage of steam.

On May 27th, 1916, we started to make 16 turns a week instead of 15 turns.

Product of Sheet and Flue Iron, Schuylkill Iron Works

	Sheet	Flue	Total
1868			5613— 9/20
1869			5056—11/20
1870			5643— 8/20
1871			6799— 3/20
1872			7338—10/20
1873			6621— 9/20
1874			8389—12/20
1875			6048—18/20
1876			5426—16/20
1877	2619— 8/20	3387—18/20	6007— 6/20
1878	2846— 6/20	3842— 1/20	6686— 7/20
1879	3484—18/20	5337—17/20	8822—15/20
1880	3394—17/20	5835— 6/20	9230— 3/20
1881	3655— 4/20	8447—12/20	12102—16/20
1882	4043—11/20	9686— 9/20	13730— 0/20
1883	3739— 8/20	8182—18/20	11922— 6/20
1884	3253— 9/20	7880— 5/20	11133—14/20
1885	3448—10/20	8372—15/20	11821— 5/20
1886	3687— 4/20	9493—11/20	13180—15/20
1887	3927— 8/20	9618—17/20	13546— 5/20
1888	3407—12/20	8638— 8/20	12046— 0/20
1889	3574—16/20	8609— 5/20	12183—15/20
1890	3894— 4/20	9668—12/20	13762—16/20
1891	3592—12/20	9691— 0/20	13283—12/20
1892	3461—10/20	9627—12/20	13089— 2/20
1893	3264—14/20	7820—19/20	11085—13/20
1894	3159— 5/20	8605—16/20	11764—15/20
1895	3531— 2/20	9482—16/20	13013—18/20
1896	3119—14/20	8685—12/20	11805— 6/20
1897	2568—17/20	7578— 0/20	10146—17/20
1898	3196—14/20	11314—17/20	14511—11/20
1899	3826— 1/20	15770— 4/20	19596— 5/20
1900	3820— 4/20	11368—19/20	15189— 3/20
1901	4237— 5/20	21588—17/20	25826— 2/20
1902	4069—17/20	21345—17/20	25415—14/20
1903	4667— 5/20	22597—13/20	27264—18/20
1904	5633— 4/20	23524—19/20	29158— 3/20
1905	6102— 0/20	25656— 6/20	31758— 6/20
1906	C 1854—10/20 S 4000—11/20	28176— 4/20	34031— 5/20
1907	6758—18/20	26964—10/20	33723— 8/20
1908	C 2191—10/20 S 2926—15/20	22798—12/20	27916—17/20
1909	C 2902—12/20 S 3871— 8/20	30787— 7/20	37561— 7/20
1910	C 2790—18/20 S 3934—14/20	34741—15/20	41467— 7/20
1911	C 2943—16/20 S 2816—11/20	34118—12/20	39878—19/20
1912	C 3281— 5/20 S 3271—17/20	36088—16/20	42642— 1/20
1913	C 2393—14/20 S 3600—19/20	36935—19/20	42930—12/20
1914	3085— 0/20	39031—11/20	42116—11/20
1915	4126—10/20	49215—14/20	53342— 4/20
1916	C 22—18/20 S 4532— 0/20	52282— 9/20	56837— 7/20
1917	5460—10/20	62351— 5/20	67811—15/20
1918	4538—	56383—	60921—
1919	3752—	44581—	48333—

Generations of Some Descendents of James Wood, Including
Those Identified With the Successive Industries
Herein Described:

1st. *James Wood*, of the Society of Friends. Born of English parents in the City of Dublin in 1706. He was a farmer; came to America about 1725. Married—Dawes in 1732; died November 3rd, 1760. His home was located between Kloat and Blue Bell in Whilpain Township, Montgomery County, Pennsylvania. He was buried at Plymouth Meeting.

2nd. *John Wood*. Seventh child of James Wood. Born January 25th, 1747; married Katharine Davis in 1769 and died in 1836.

3rd. *James Wood*. Eldest son of John and Katharine Wood. Born October 23rd, 1771. Married Tacy Thomas, of Gwynedd (Welsh descent) in 1796. She died July 11th, 1811. He subsequently married Ann W. Warner.

*Note 6.

4th. *Alan Wood*. Third child of James and Tacy Wood. Born December 25th, 1800. Married Ann Hunter Dewees, February 22nd, 1825. Died November 24th, 1881.

4th. *John Wood* (known as 'Squire Wood) was a brother of Alan Wood, having been a child of James and Ann Warner Wood. Born April 17th, 1826.

CHILDREN OF ALAN AND ANN HUNTER WOOD

5th. *W. Dewees Wood*. Born April 17th, 1826. Married March 16th, 1848, to Rosalind Gilpin.

5th. *Thomas Wood*. Born December 12th, 1827. Married October 9th, 1850, to Maria Flagg. Died May 24th, 1880.

5th. *James H. Wood*. Born March 20th, 1837. Died March 27th, 1864.

5th. *Alan Wood, Jr.* Born July 6th, 1834. Died Nov., 1902.

5th. *George W. Wood*. Born March 20th, 1837. Died February 24th, 1859.

5th. *Howard Wood*. Born February 8th, 1846. Died July 1st, 1911.

6th. *Richard G. Wood*. Born 1849, now chairman of the Board of Directors of the company, son of W. Dewees Wood.

6th. *Biddle Wood*, son of Howard Wood.

6th. *Alan Wood, 3rd*, son of Howard Wood.

6th. *Howard Wood, Jr.*, son of Howard Wood.

6th. *Clement B. Wood*, son of Howard Wood (now a director).

7th. *Alan D. Wood*, son of Richard G. Wood.

7th. *Richard G. Wood, Jr.* son of Richard G. Wood.

7th. *Vincent P. Wood*, son of Thomas D. Wood (superintendent of the J. Wood Department).





BLAST FURNACES—SWEDELAND, PA.



Photo by HOWLAND

STEEL PLANT--IVY ROCK, PA.



RAINEY-WOOD COKE PLANT—SWEDELAND, PA.

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